Issue 121

PS

1962 Series

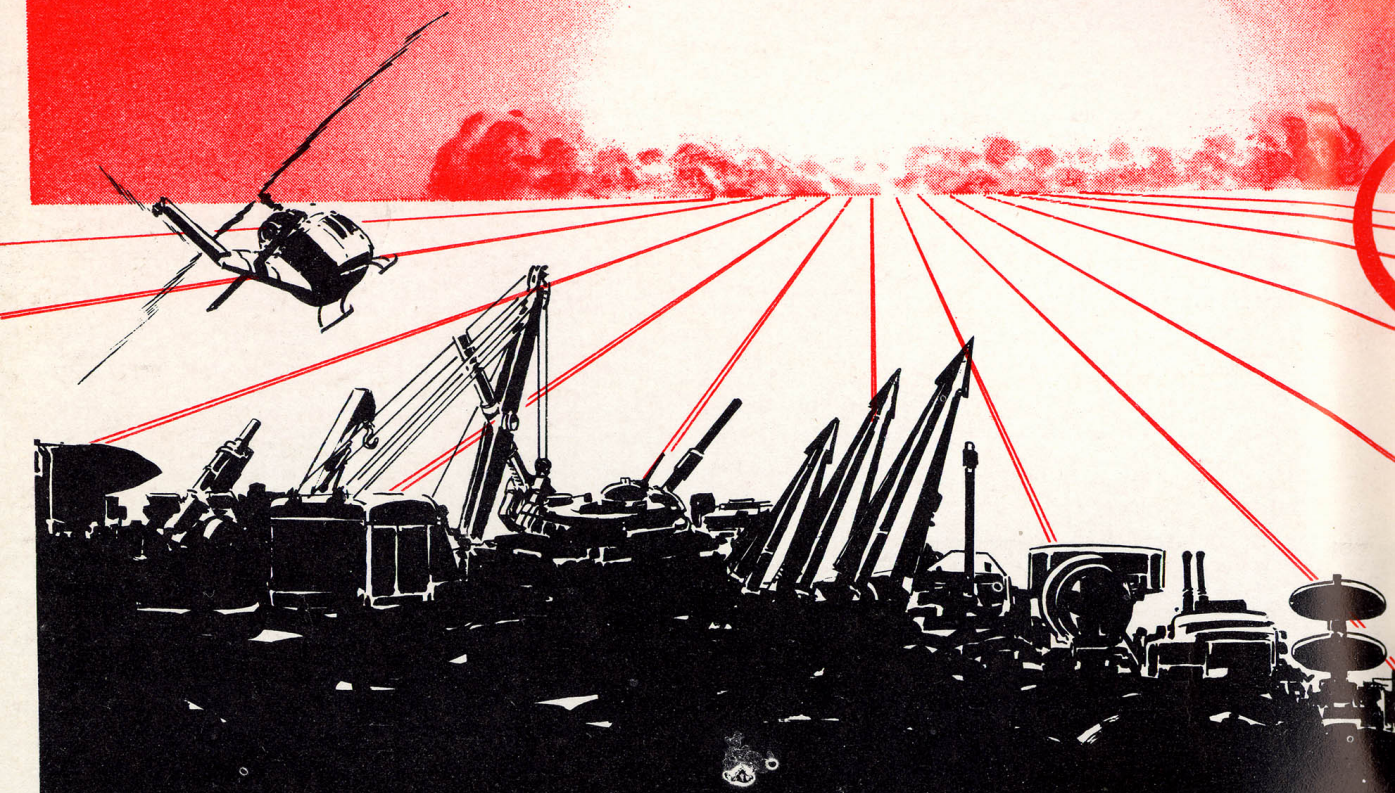
THE PREVENTIVE MAINTENANCE MONTHLY

EQUIPMENT MUST

The word is out.

Army equipment will be kept ready for combat.

Just read a few words out of AR 11-14—



Keeping equipment ready to fight is everybody's job—generals and privates and everybody in between. Like the same AR says: "Each individual must be made to realize that the materiel in his hands today is the materiel with which he may fight tomorrow."

Let's get with it.

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HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., *5 June 1962*

ARMY PROGRAMS

ATTAINMENT OF MATERIEL READINESS

for a marked change in attitude toward materiel readiness. Commanders, soldiers, and civilians at all levels must realize that the increasing dependency of the Army on larger quantities of more complex materiel carries with it the mandatory obligation to maintain materiel in a ready condition. This is an Army-wide, worldwide problem involving all officers, warrant officers, enlisted personnel, and civilians. A readjustment in the priority application of available resources is required. Funds, qualitative as well as quantitative manpower, management, and technical skills must be applied to improve materiel readiness.

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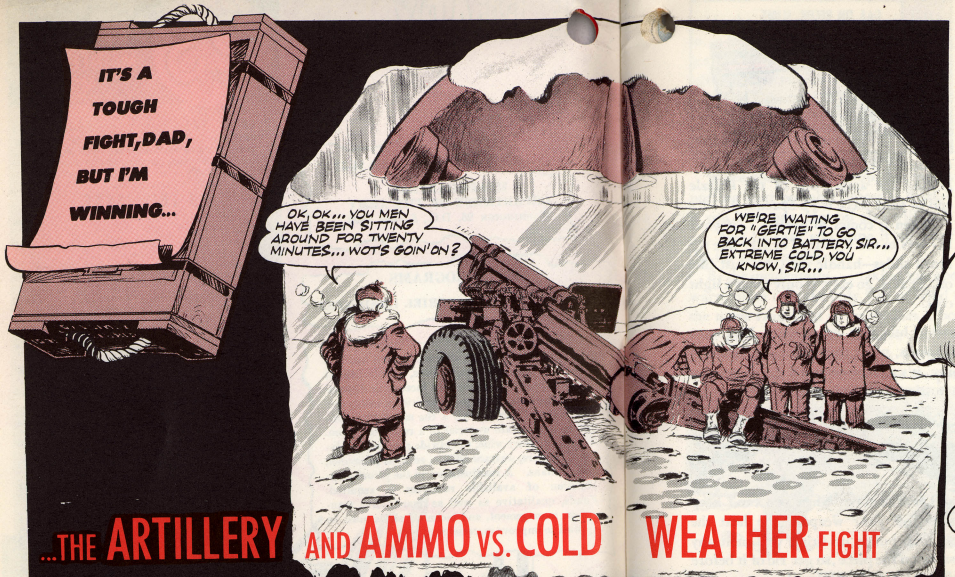
...THE ARTILLERY AND AMMO VS. COLD

If there're two things that'll frost an artilleryman, they're snow and cold.

They make life miserable and make it tougher'n a 50-cent steak to take care of your weapons. And nobody's going to give you a snow job about there being a way to beat the weather—unless you get a transfer to the tropics. And that'd be jumping from the freezer onto the stove.

As long as you have snow and ice staring you in the kisser at every point on the compass, the idea is to keep telling yourself that you can have your weapons ready for action—with some effort. And then go ahead and do it.



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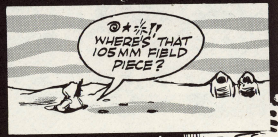
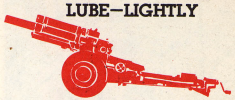
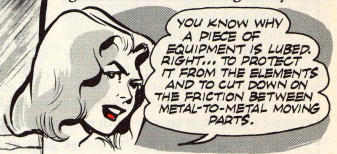


If you can thaw out your eyeballs and keep the snowdrifts and icicles out of your eyebrows long enough, you can pick up some tips that'll make your job easier by reading on. Maybe some of 'em are old hat . . . and others are new to you. The big thing is that they're wrapped up in one package.

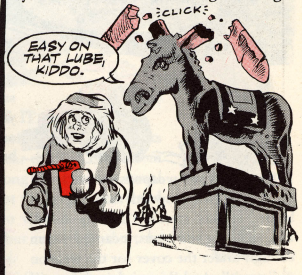
LUBE—LIGHTLY



There's one bit of scoop that's probably the most important to remember when it comes to maintaining your weapons. And that's lubrication—the right kind and done the right way.



It might seem like the more lubricant you use, the less friction you'll have. T'aint so. Like everything else, you can have too much of a good thing.



And when it gets cold enough to freeze the ears off a lead donkey then it's doubly so. Too much grease or oil can thicken so much in frigid weather that the moving parts won't.

MORE

WEATHER FIGHT

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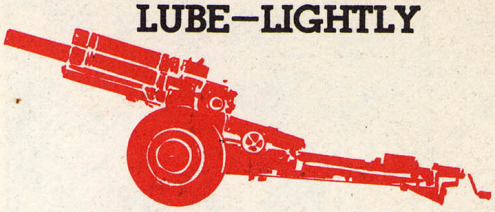

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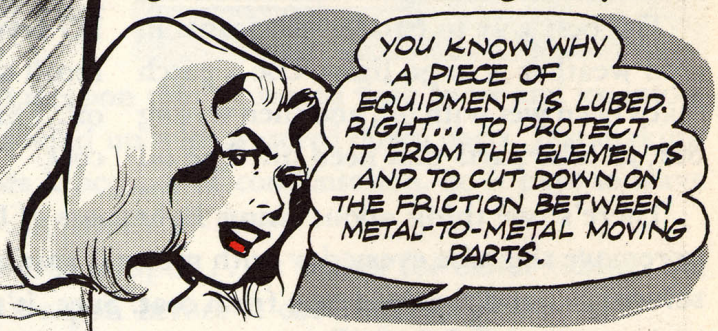

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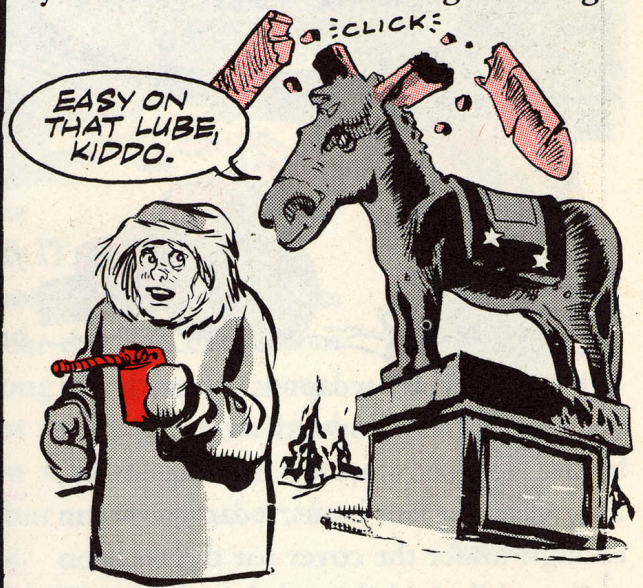

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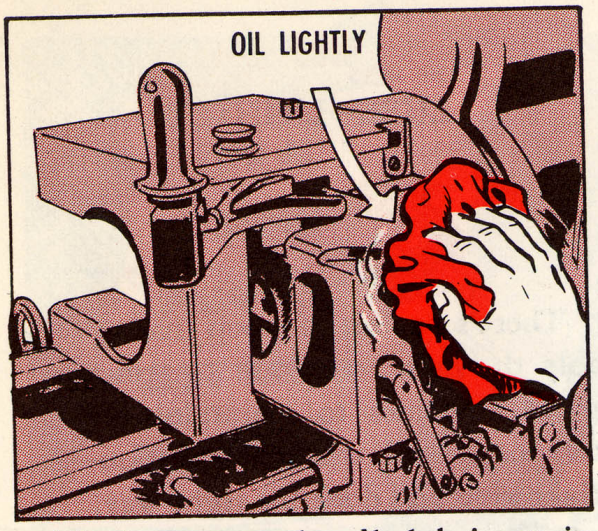
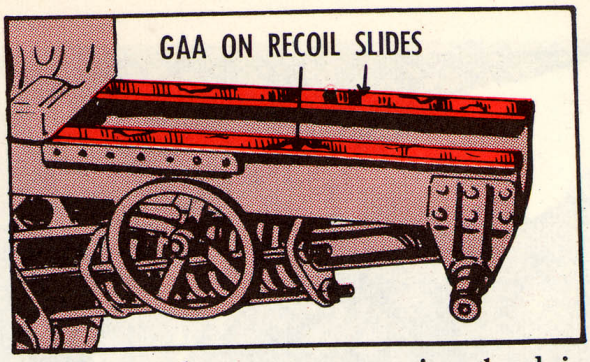
PS MORE



The best way to handle lubricants in cold weather is to go light. Use a patch that's been wet with oil, and then wrung out, to lube parts that need oil. The oil



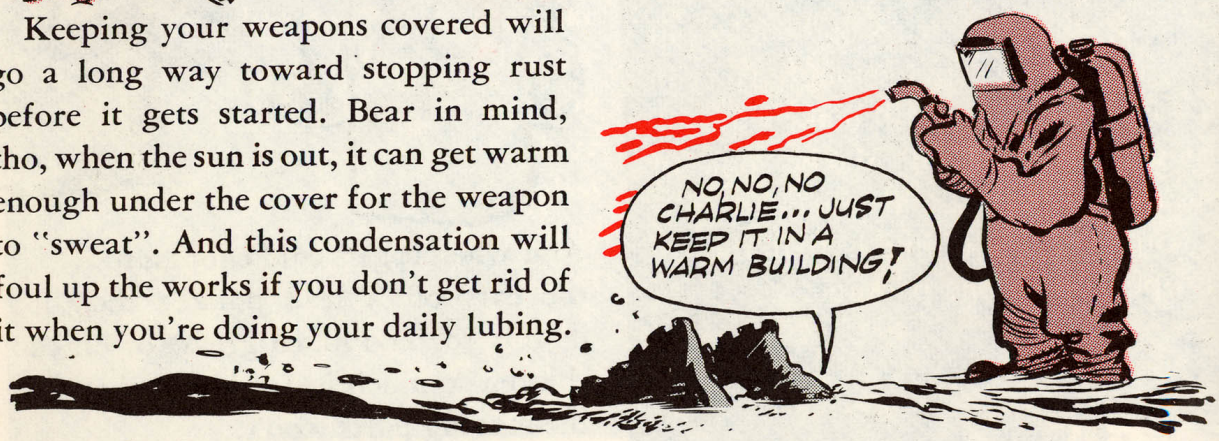
to use on the components involved in getting the ammo out of the muzzle end of your piece is PL Special.

When it comes to grease . . . if your LO says to use it instead of oil—like for recoil slides—handle the GAA just like oil. That is, go easy. It only takes a light coat.

There's one thing about using light coats of lube that means work. You want to remove the lube every day with mineral spirits, paint thinner or dry cleaning solvent . . . and then put on a fresh coat. Sure, it's a chore—but it's the preventive maintenance kind that'll keep parts from busting and rusting.

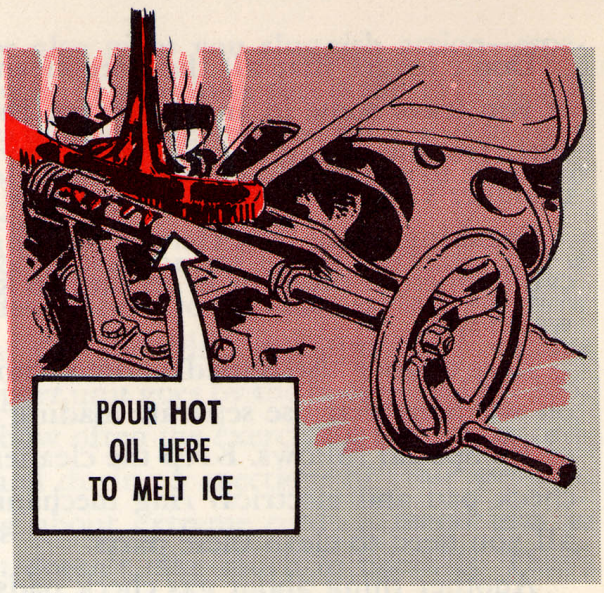
There're times when you can't keep snow off your weapon. The heat the weapon builds up firing will melt any snow on the piece, so get rid of it before you start shooting up the countryside or move the piece into a warm tent or building.

Keeping your weapons covered will go a long way toward stopping rust before it gets started. Bear in mind, tho, when the sun is out, it can get warm enough under the cover for the weapon to "sweat". And this condensation will foul up the works if you don't get rid of it when you're doing your daily lubing.



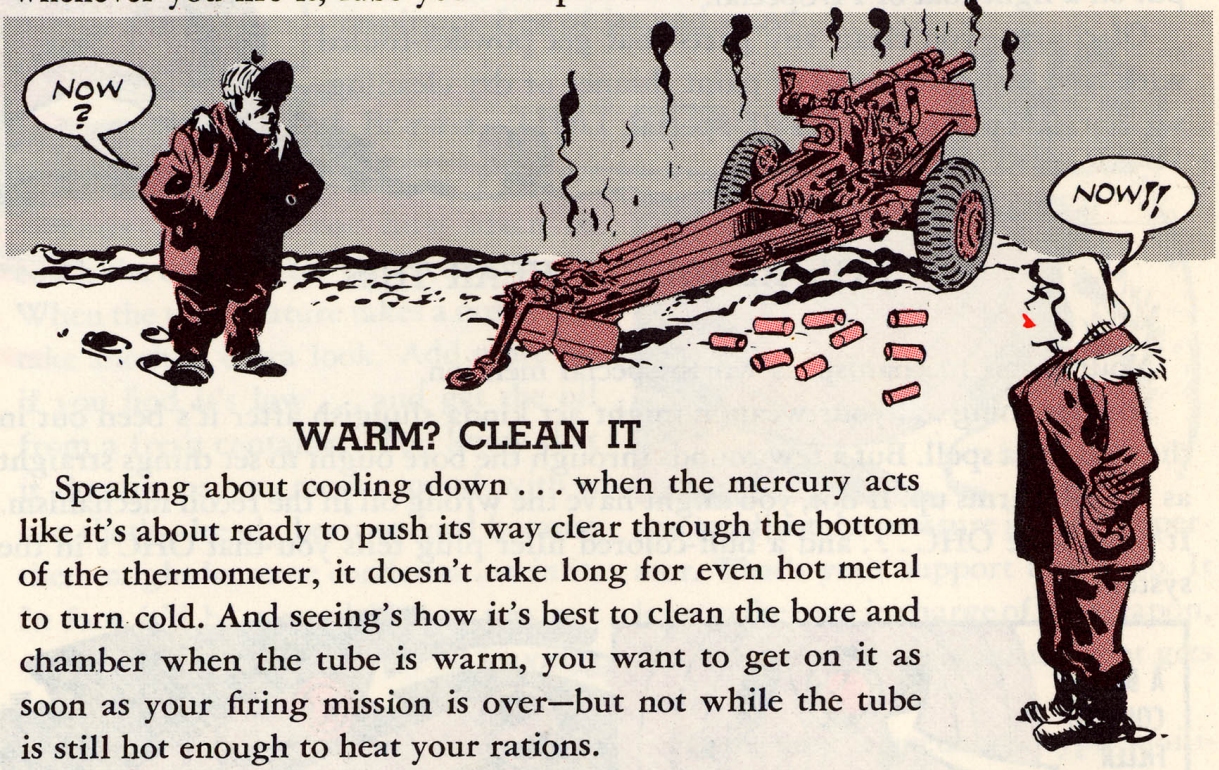
Maybe you can't brush away the snow before you pull the lanyard. Then get rid of the water and what snow's left the first chance you have. This'll not only call a halt to rust . . . it'll also prevent ice from taking shape. And ice sure has a way of keeping parts that're supposed to move from moving.

When you get a freeze-up, that means putting your portable heater to work—if you have one. Hot oil also will melt ice. Just be sure you wipe it off after the ice has disappeared.



By the incidentally . . . taking a weapon that's covered with snow and ice into a warm place isn't the only way to wind up with watered down parts. Just making the move from cold to warm does it because of condensation. So it pays to leave your piece outside—if you have any choice.

There's one advantage to a warm weapon . . . it makes for easier lubing. So, whenever you fire it, lube your weapon before it cools down.



WARM? CLEAN IT

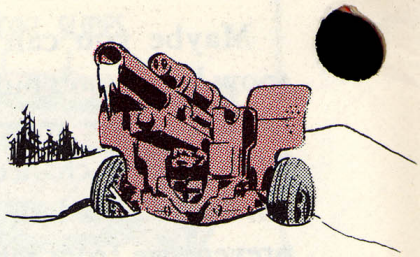
Speaking about cooling down . . . when the mercury acts like it's about ready to push its way clear through the bottom of the thermometer, it doesn't take long for even hot metal to turn cold. And seeing's how it's best to clean the bore and chamber when the tube is warm, you want to get on it as soon as your firing mission is over—but not while the tube is still hot enough to heat your rations.

Use warm bore cleaner (shake it good first and don't mix it with anything), followed by a light coat of PL Special. The bore and chamber get the same going over the next two days when the weapon is cold—again with bore cleaner.

They won't be as tough to clean, tho, 'cause you got most of the stuff out on the first go-round.

PS MORE

Don't forget that all the bore cleaner wants to be out. If you leave some in and it freezes, the round might hit a little trouble trying to squeeze its way out the bore. If the chamber's icy, you might not even be able to load.



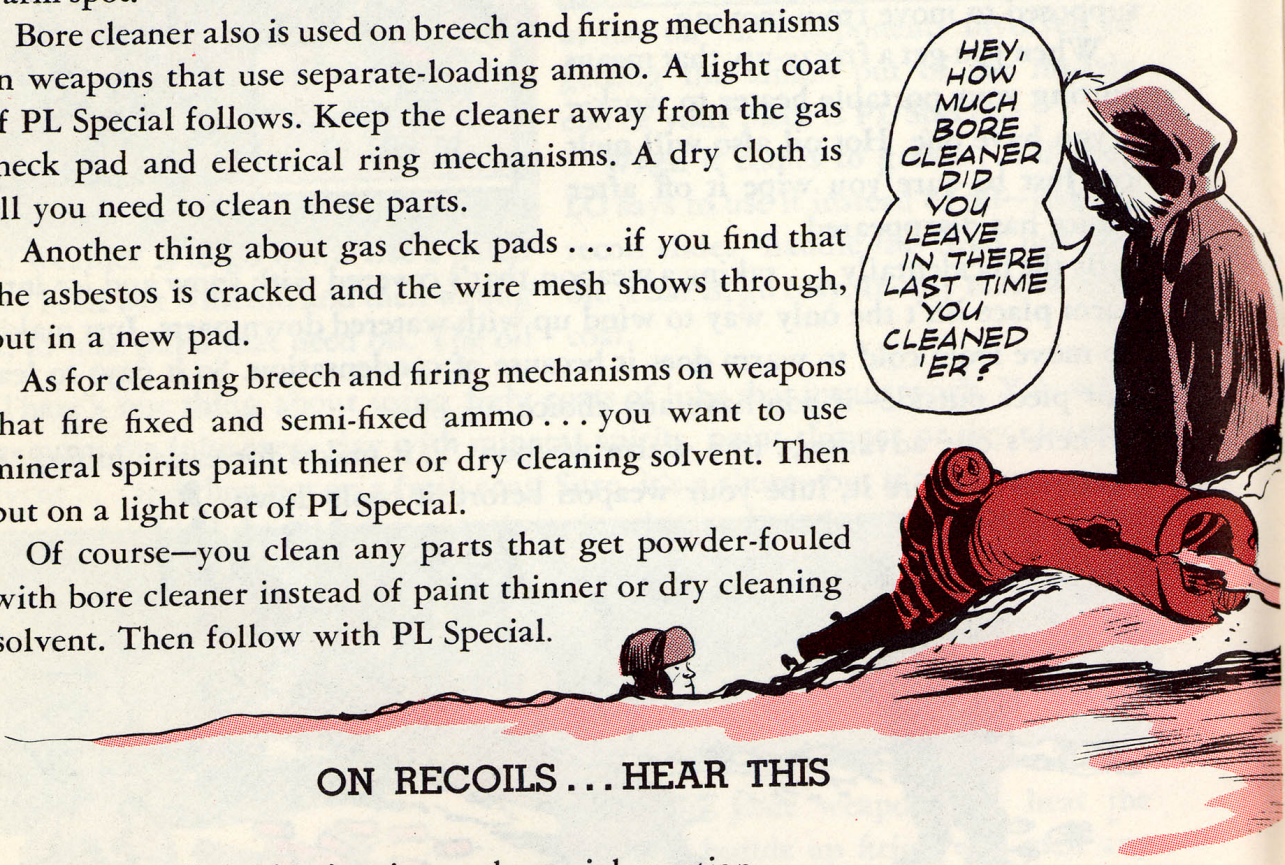
Speaking about bore cleaner freezing . . . the same thing can happen to the stuff in its can. So keep the cleaner in a warm spot.

Bore cleaner also is used on breech and firing mechanisms on weapons that use separate-loading ammo. A light coat of PL Special follows. Keep the cleaner away from the gas check pad and electrical ring mechanisms. A dry cloth is all you need to clean these parts.

Another thing about gas check pads . . . if you find that the asbestos is cracked and the wire mesh shows through, put in a new pad.

As for cleaning breech and firing mechanisms on weapons that fire fixed and semi-fixed ammo . . . you want to use mineral spirits paint thinner or dry cleaning solvent. Then put on a light coat of PL Special.

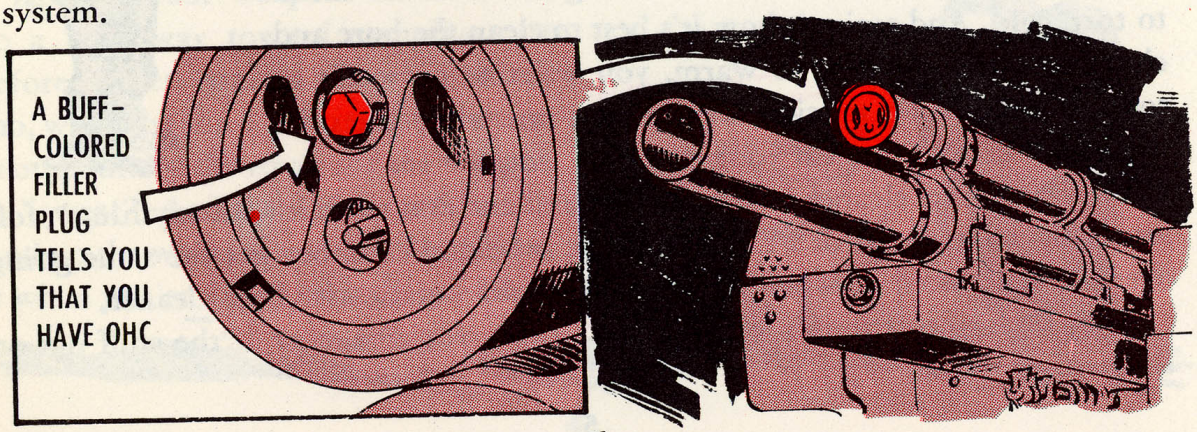
Of course—you clean any parts that get powder-fouled with bore cleaner instead of paint thinner or dry cleaning solvent. Then follow with PL Special.



ON RECOILS . . . HEAR THIS

Your recoil mechanism is worth special mention.

For one thing . . . your weapon might act kinda sluggish after it's been out in the cold for a spell. But a few rounds through the bore ought to set things straight as the oil warms up. If not, you might have the wrong oil in the recoil mechanism. It oughta be OHC . . . and a buff-colored filler plug tells you that OHC's in the system.



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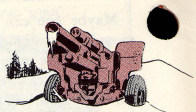

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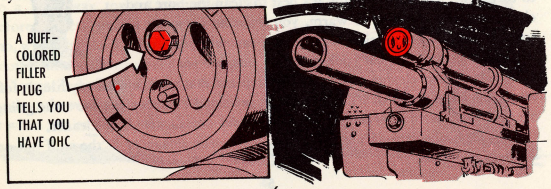
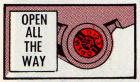




Low gas pressure also gives you sluggish action—especially in frigid weather. If you think this is the answer, tell your support unit to hitch up the dog sled for a visit to your outfit. They probably will say that adding oil will make up for the drop in pressure.

Exercising the recoil mechanism in the extreme cold is a special kind of deal. There're no rules saying just how often it's done. But you shouldn't run into any problems as long as your support unit goes by the book—TB Ord 303. They'll figure out how often the exercising is done according to what they find during inspections of your weapon.

There's one thing about extreme cold . . . metal gets so darn brittle that it doesn't take much to break it. That's why it pays to look for cracks before, during and after firing. If you spot any, it's time to heat some coffee because your support people will be dropping by.

Getting back to the recoil mechanism . . . maybe yours has an adjustable respirator. If so, open it as far as you can before you let go with your first round. And keep the respirator free of ice and snow.

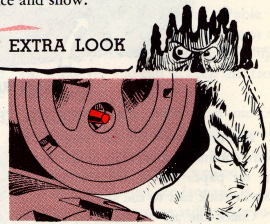
Br-r-r—THAT EXTRA LOOK

Your TM tells you how often to check the oil level for the recoil system. When the temperature takes a nose dive, take another, extra look. Add more oil if you find it's low . . . and get the oil from a fresh container. You know that it doesn't pay to mess around with a can that's already been opened because there might be some condensation in it. In fact, it'd be a good idea to toss out any old cans that have some oil leavings in 'em.

That's why it's a good deal—when you requistion recoil oil — to ask for quart cans. You have a lot less waste that way.

Cold weather also affects the gas pressure . . . it drops. But it's not up to you to adjust the pressure in the recuperator. That's your support unit's job. It is up to the man in charge of the weapon, tho, for seeing that the adjustment gets made.

If you have a pneumatic-type equilibrator, you make the nitrogen pressure adjustment. And in case the equilibrator has a low temperature control, do the adjusting according to your temperature scale.



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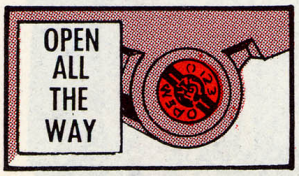
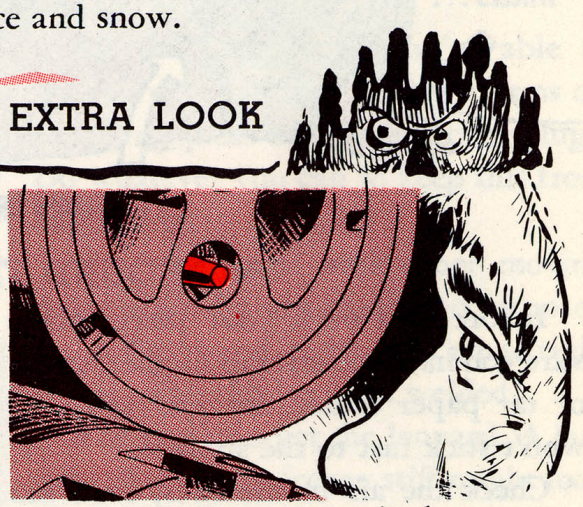


Br-r-r-r—THAT EXTRA LOOK



Your TM tells you how often to check the oil level for the recoil system. When the temperature takes a nose dive, take another, extra look. Add more oil if you find it's low . . . and get the oil from a fresh container. You know that it doesn't pay to mess around with a can that's already been opened because there might be some condensation in it. In fact, it'd be a good idea to toss out any old cans that have some oil leavings in 'em.

That's why it's a good deal—when you requistion recoil oil — to ask for quart cans. You have a lot less waste that way.

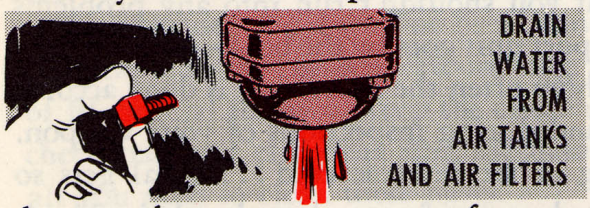
Cold weather also affects the gas pressure . . . it drops. But it's not up to you to adjust the pressure in the recuperator. That's your support unit's job. It is up to the man in charge of the weapon, tho, for seeing that the adjustment gets made.

If you have a pneumatic-type equilibrator, you make the nitrogen pressure adjustment. And in case the equilibrator has a low temperature control, do the adjusting according to your temperature scale.

PS MORE

DRAIN YOUR BRAKES

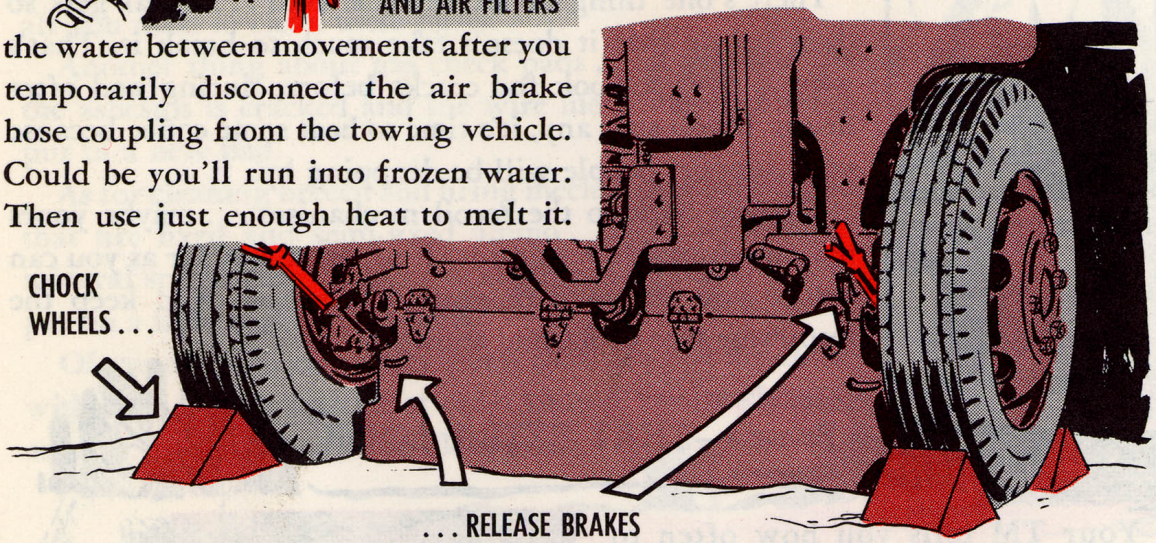
As for your air brakes . . . water wants to be drained from the air filters and air tanks every eight hours of continuous travel (you can kill two birds with one rock)—but not while the air brake system is under pressure. Drain



the water between movements after you temporarily disconnect the air brake hose coupling from the towing vehicle. Could be you'll run into frozen water. Then use just enough heat to melt it.

In extreme cold, you oughta be using Arctic-type air hoses. Otherwise, you run smack into the problem of cracking when you have to straighten out or bend a hose.

Your best bet with hand brakes is to release 'em after your weapon is parked and the wheels are chocked. That way . . . the brakes won't freeze in a set position.



AROUND THE WHEELS

Before you park your piece, make sure you have some scrap lumber, straw or tar paper under the tires so's they won't stick fast to the snow.

Check the air in the tires, even tho they look like they're loaded. Believe it or not, at −50°F, the tires are so stiff they can hold a load without any pressure in 'em.

Ice can break the valve stems . . . it's a fact. All it takes is for moisture to get inside. So use valve caps. And watch how you move the valve stems. They also get brittle.

When you go to move out, the man in the prime mover wants to go slow and easy with the gas pedal. This'll give any flat spots that've developed in the tires a chance to round out, on the slow side.

The prime mover doesn't want to move so much as one inch until you've taken a long, hard look at the weapon to make sure that all covers are on right and tight.

If the covers are frozen before you put them on or take them off, be careful with the folding and unfolding. You don't put in or take sharp bends out of a sheet of ice.

Maybe you have special skis or sleds for using with your weapon. Maybe it takes time to install them. There're no maybes about one thing—it takes more'n a little while to free a weapon that's over its muzzle in snow.

BEFORE YOU—READY... AIM...

The easiest way to emplace the weapon is to drop the trails and spades in the snow. The smart way is to first wipe some waste lube on any parts of the trails and spades that will touch the snow. This'll help to keep 'em from freezing fast.

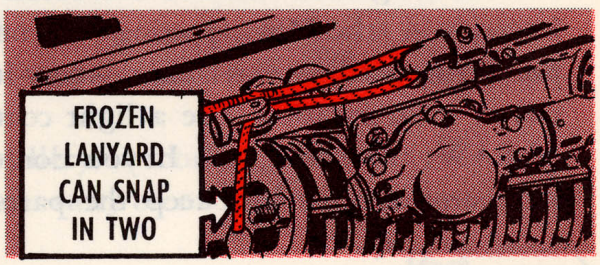
And if your weapon is on plain frozen ground, you flirt with the risk of busting the spades when the recoiling starts. So put the spades on something like tree boughs or straw to take up the shock.

Firing jacks also want to have something between them and the snow and ice so they won't freeze tight. And, like with the trails and spades, waste lube is a good deal.

All the blue flame you're able to spout won't melt any ice that forms on the firing jacks and their locking lugs. Do whatever you can to keep this from happening.

The same goes with other moving parts—like handwheels and exposed gears. Snow and ice can lock'em so tight you'll think they've been welded.

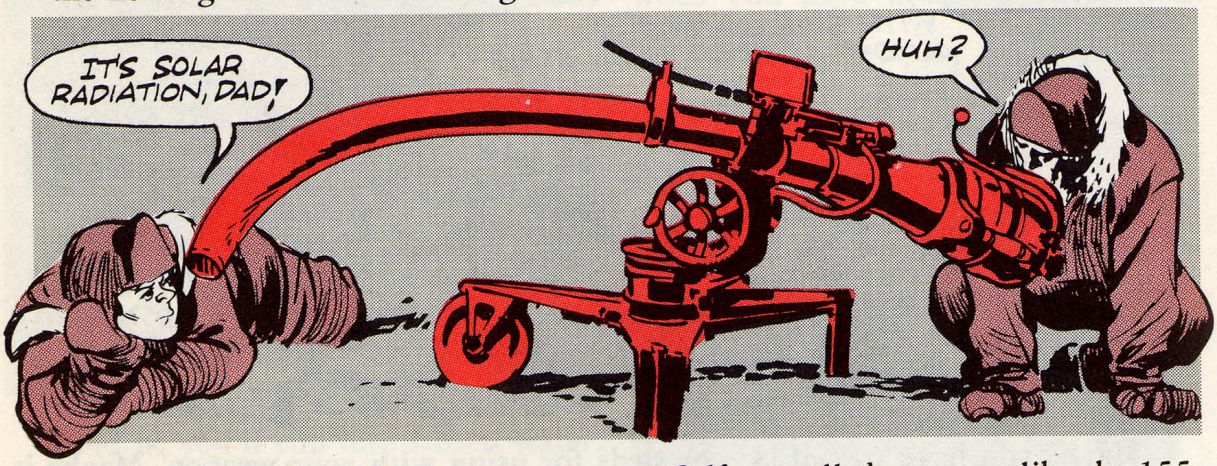
And don't forget the lanyard. A lanyard that's been frozen stiff might look like it's made for doing that rope-climbing trick. Could be it would work, too. Chances are good, tho, that it'll snap in two when you go to yank on it to send the round on the way.



P.S. MORE

CURVES, WRONG KIND

Some weapons give you special kind of headaches in extreme cold. Take the recoilless rifles as a f'rinstance. The barrel will actually bend a hair because of what's called "solar radiation." Those two-buck words are another way of saying "the heating of the air and the ground."



Here's what happens. Say when you boresight, the sun's not out—like before sunrise. You finish the job and the bore and the sight reticle are on the same target. Then old Sol comes out and bears down. The next thing you know, things are heated enough to put a bend in the tube.

You can tell this has happened when you see that the sight reticle is still pointing at the target while the barrel is aimed off in another direction. A few rounds through the tube and another boresighting gives you the same accurate weapon you had before.

What it adds up to is that you should come up with your own firing table figures for using with recoilless rifles in the extreme cold.

Something about the 106-mm recoilless rifle . . . the M8C spotting rifle on top of it needs special care when it comes to lubrication. Use a light coat of LAW lubricating oil. If you don't have any of this, just keep the parts clean and dry.

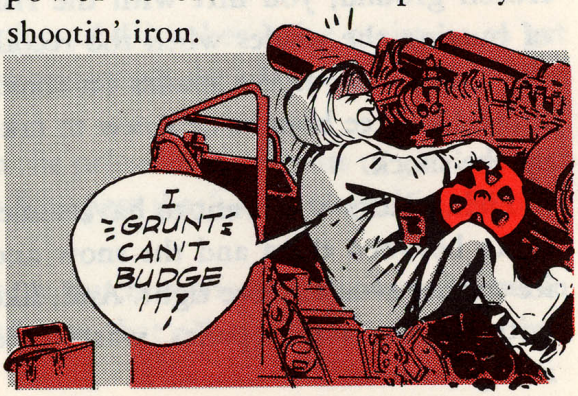
Self-propelled weapons like the 155-mm gun and the 8-in howitzer have the same kind of "solar radiation" problems as the recoilless rifles. And they're handled the same way.

There're a coupla other things to remember about SP shooters.

The weapon gets checked for binding caused by ice and snow by traversing in each direction from stop block to stop block.

Check the index marks on the traverse stop block to see that they line up with the fixed pads.

And operate the elevating controls to see if it takes more'n a little muscle power to elevate or depress your shootin' iron.

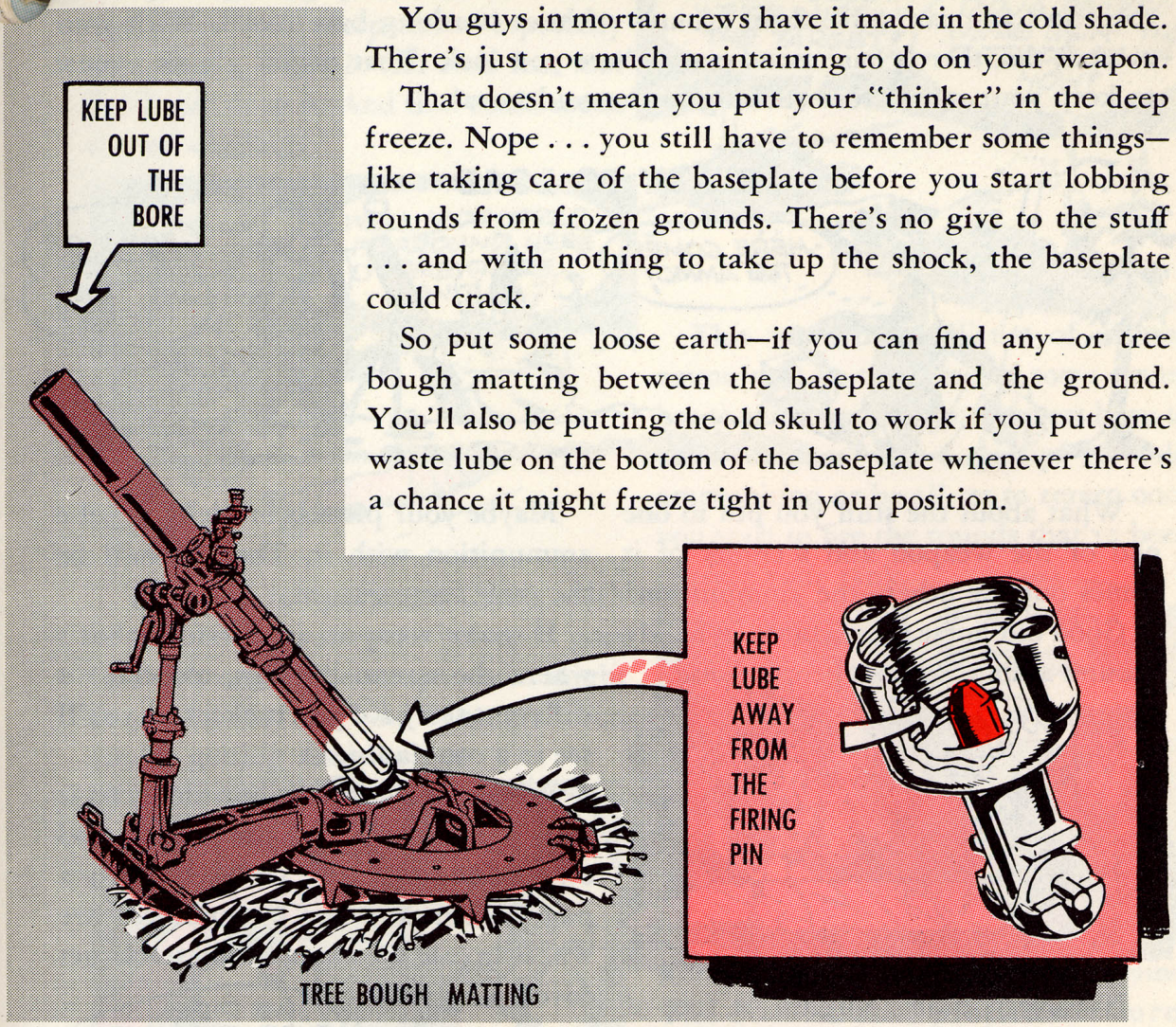


FOR YOUR MORTARS

You guys in mortar crews have it made in the cold shade. There's just not much maintaining to do on your weapon.

That doesn't mean you put your "thinker" in the deep freeze. Nope . . . you still have to remember some things—like taking care of the baseplate before you start lobbing rounds from frozen grounds. There's no give to the stuff . . . and with nothing to take up the shock, the baseplate could crack.

So put some loose earth—if you can find any—or tree bough matting between the baseplate and the ground. You'll also be putting the old skull to work if you put some waste lube on the bottom of the baseplate whenever there's a chance it might freeze tight in your position.



Other things that've been said about maintaining artillery pieces in extreme cold also apply to mortars.

Those'd be things like using PL Special for lubing . . . checking the bore for snow or ice before firing . . . and keeping moving parts clear of snow and ice.

You keep lube out of the bore and away from the firing pin. Don't forget that.

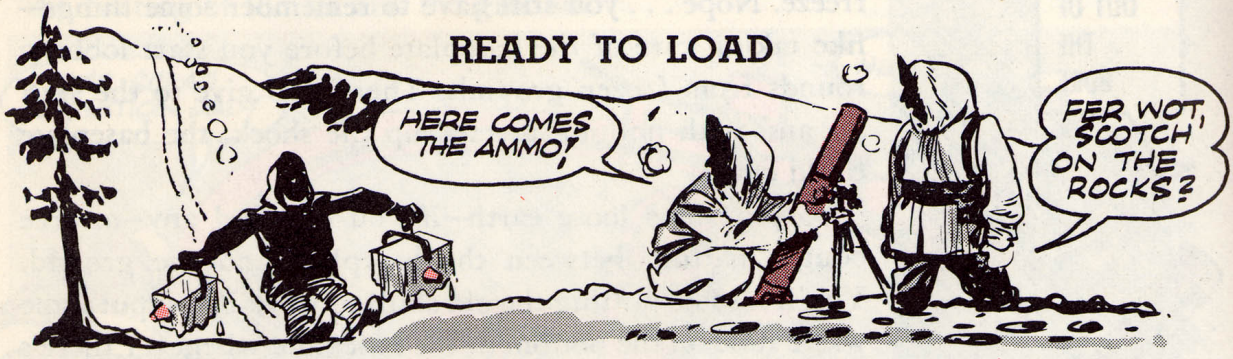
If you move the mortar from the cold to a warm place where condensation then takes over, you want to disassemble the weapon, wipe it dry, clean it with mineral spirits paint thinner or dry cleaning solvent and finish up by wiping it with a light coat of PL Special.

As with artillery weapons, the best place for your mortar is out in the cold (protected from the weather, of course) so you don't run into condensation problems.

Members of any weapons crew, be it artillery or mortar, know that they keep their TM's and FM's handy for the complete story on maintaining their weapons in extreme cold.

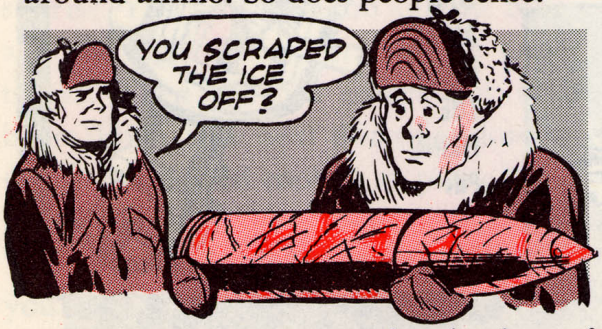
PS MORE

Most other infantry weapons have wooden or plastic components here and there so's you can move them around without touching bare metal. With your mortar, tho, there's bare metal everywhere you look. That makes gloves a must to keep your mitts from sticking to the cold metal.

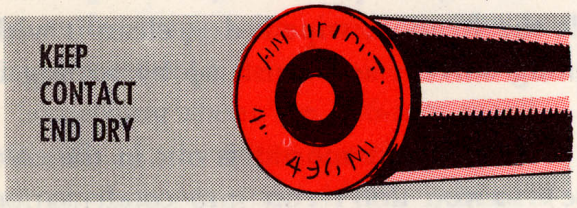


What about the stuff you put in one end of the weapon and a chunk of it comes out the other—the ammunition?

Good old horse sense comes in handy around ammo. So does people sense.



Naturally, ammo oughta be free of snow and ice before it sees the inside of your weapon. Naturally. Something like a piece of soft wood is best for scraping away the snow and ice. A knife has a habit of cutting when it shouldn't.



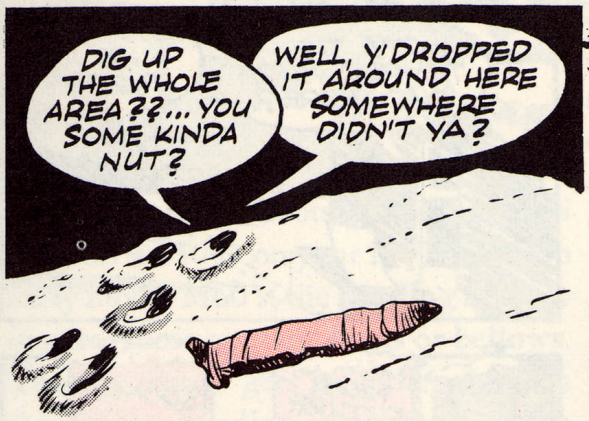
You're on the ball when you keep the contact end of primers dry when you're using electric primers. That's a good way to avoid shorts when you're firing.

Maybe your piece is inside. Keep the ammunition with it. Then, both'll be the same temperature.

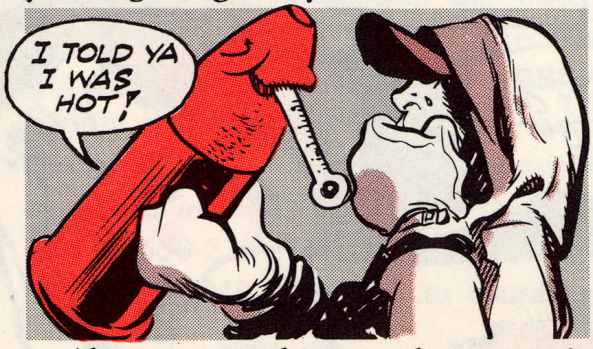
If your weapon is outside, that's where the ammo belongs, too. (It's a different story for you tankers, as you'll see in a coupla lines.)

When your ammo is outside, keep it in its container . . . off the ground and on dunnage . . . and covered with a paulin. Know what lot numbers are where in case the ammunition stacks get covered by snow.

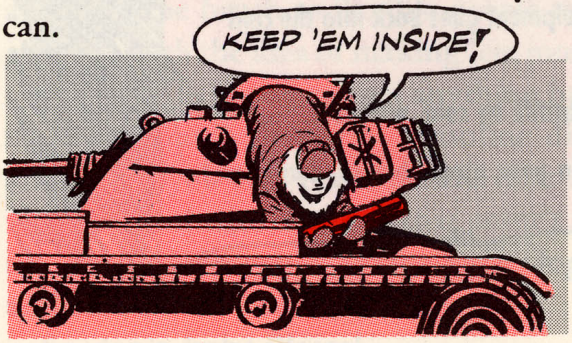
Have a good grip on the ammo when you carry it in deep snow—especially the smaller stuff. It can sink fast and far if you drop it. And that could mean lots of digging.

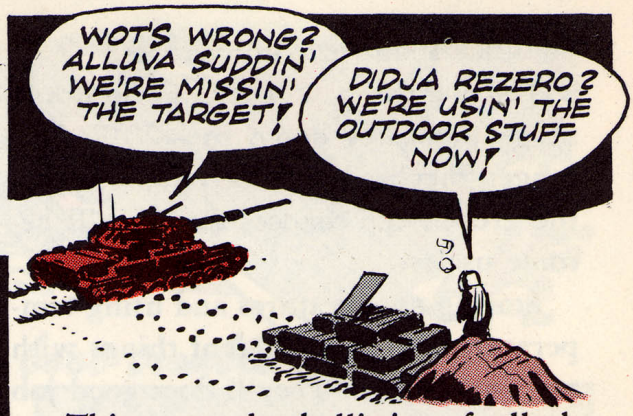


There're temperature limits with ammo. Look yours over before it goes in the breech. The temperature might be too low for the kind of ammunition you're getting ready to fire.

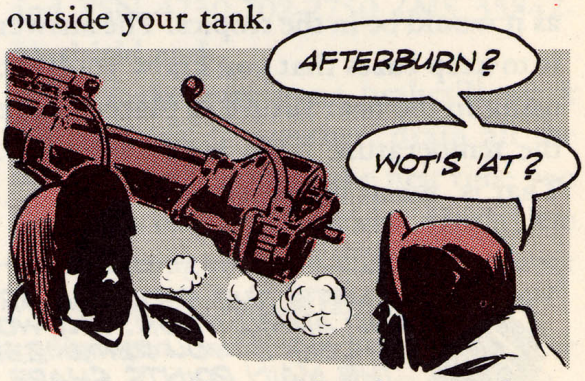


About you tankers . . . the ammo in your turret is one temperature and the stuff outside is another. It's a right good idea in this situation to keep all the ammunition inside the turret—if you can.





This way, the ballistics of all the ammo will be the same. If some ammo has to stay outside, you gunners have to have scoop at your fingertips for cold ammunition or be all set to rezero once you start to fire the rounds that've been outside your tank.



You recoilless rifle shooters have something to think about with ammo. The deal is, that propellant burns slower in cold weather. And after the projectile leaves the rifle, burning gases

—called "afterburn"—stay behind in the tube. You're on the ball if you wait at least one minute before you reload. This gives the propellant a chance to burn itself out.

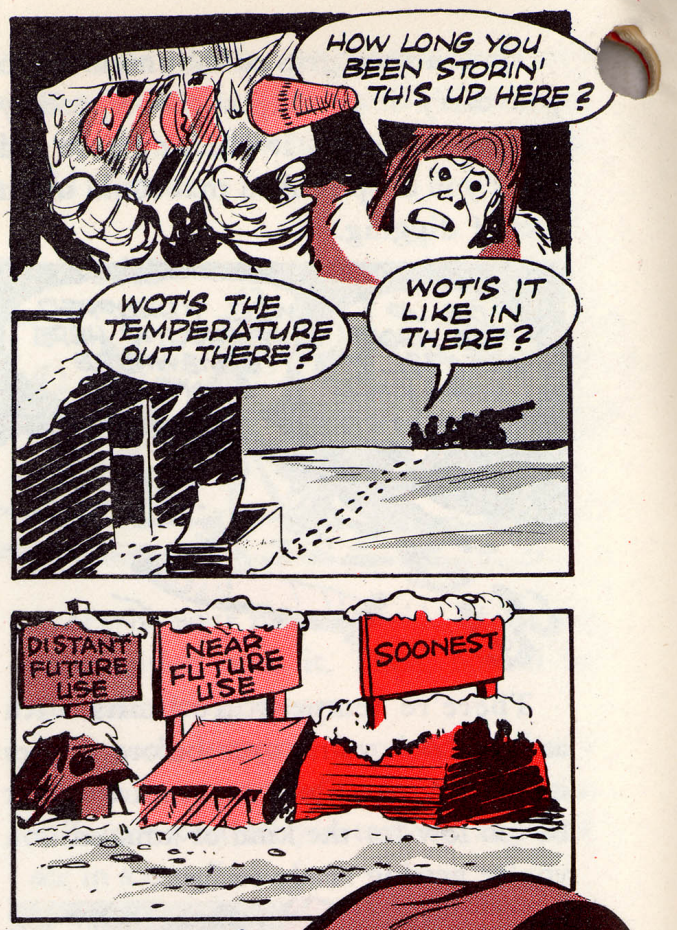
PS MORE

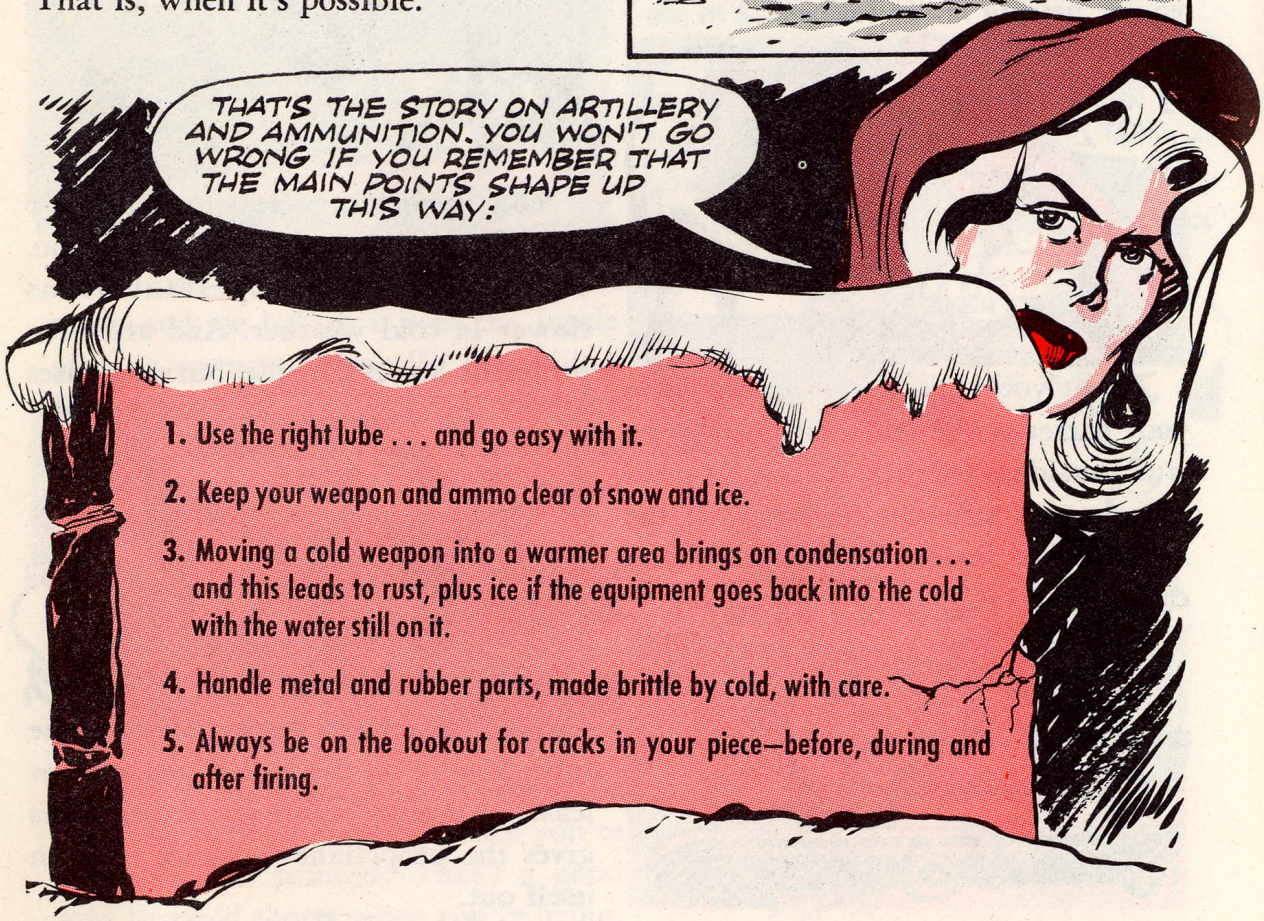
What about proximity fuzes?

For one thing . . . they can be stored at temperatures down to —20°F. The longer they're in colder temperatures, the greater the chances that they'll become useless.

Storing temperatures and using temperatures are two different things with proximity fuzes. They'll do a good job for you when the mercury drops to 0°F. That is, the temperature of the fuze itself is 0°F.

As the mercury slides below this point, you can figure that the fuze won't work as well—although it'll be as safe as it would be in the tropics. The answer is to keep fuzes that you know you'll be using in the near future in places where the temperature is no lower than 0°F. That is, when it's possible.

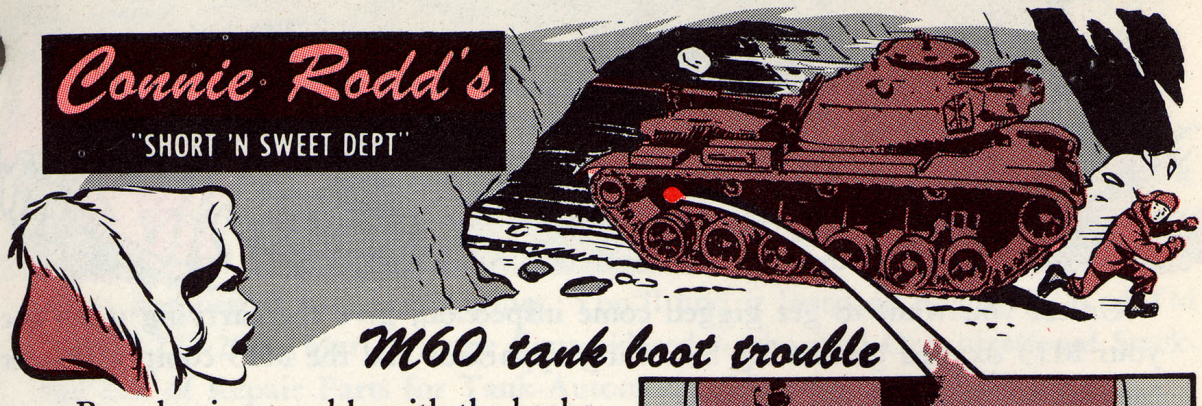




1. Use the right lube . . . and go easy with it.
2. Keep your weapon and ammo clear of snow and ice.
3. Moving a cold weapon into a warmer area brings on condensation . . . and this leads to rust, plus ice if the equipment goes back into the cold with the water still on it.
4. Handle metal and rubber parts, made brittle by cold, with care.
5. Always be on the lookout for cracks in your piece—before, during and after firing.

Connie Rodd's

"SHORT 'N SWEET DEPT"

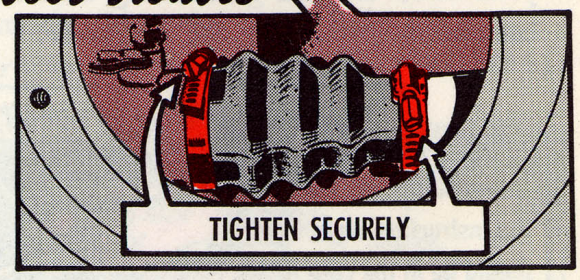


M60 tank boot trouble

Been having trouble with the brake-control-housing boots (bellows FSN 2530-679-4505) on your M60 tank? On early model M60's, the bonding is likely to come loose on these boots or bellows. Then . . . water gets in, either through the loose bonding or simply from condensation.

In cold weather the water freezes and —Presto!!—no brakes.

The later model tanks have hose clamps (hangars) to keep the water out—that helps some. Your support can get these clamps through your regular supply channels if you've got an early model M60. These clamps or hangars are listed in the FSN index of the new TM 9-2350-215-35P/1 with FSN 4730-702-9233 (MS 35842-4) to coupling and FSN 4730-702-2750 (MS 35842-3) shield end.

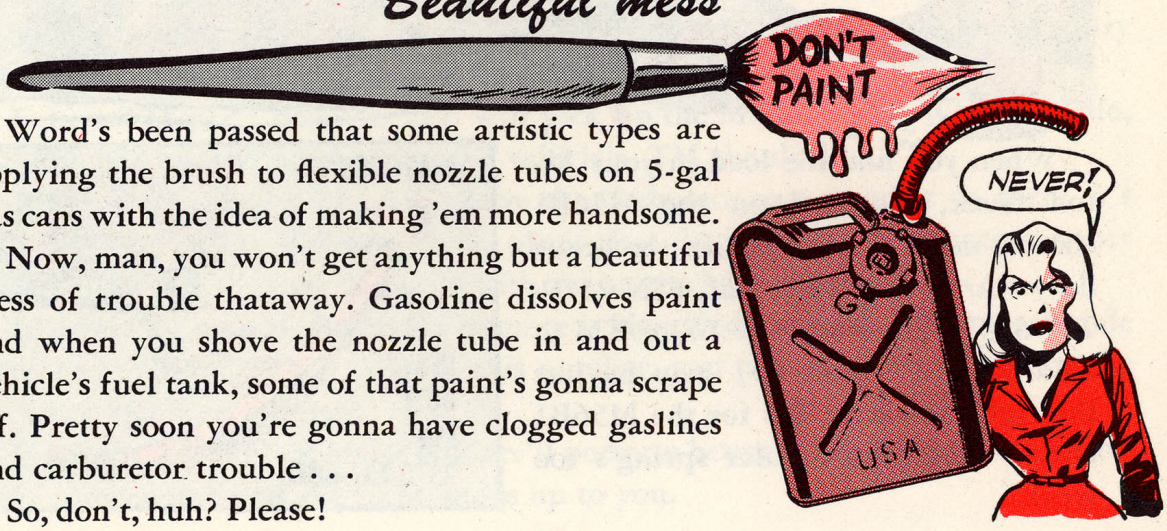


To make sure your brakes'll work OK in freezing weather, drain all the water out of the boot the first time you see frost on the pumpkin. Drain 'em again throughout the winter whenever you think they need draining.

Between drainings, keep those hose clamps in place and T-I-G-H-T. Like tight, man.

You get at these boots through the inspection plates under the transmission.

Beautiful mess

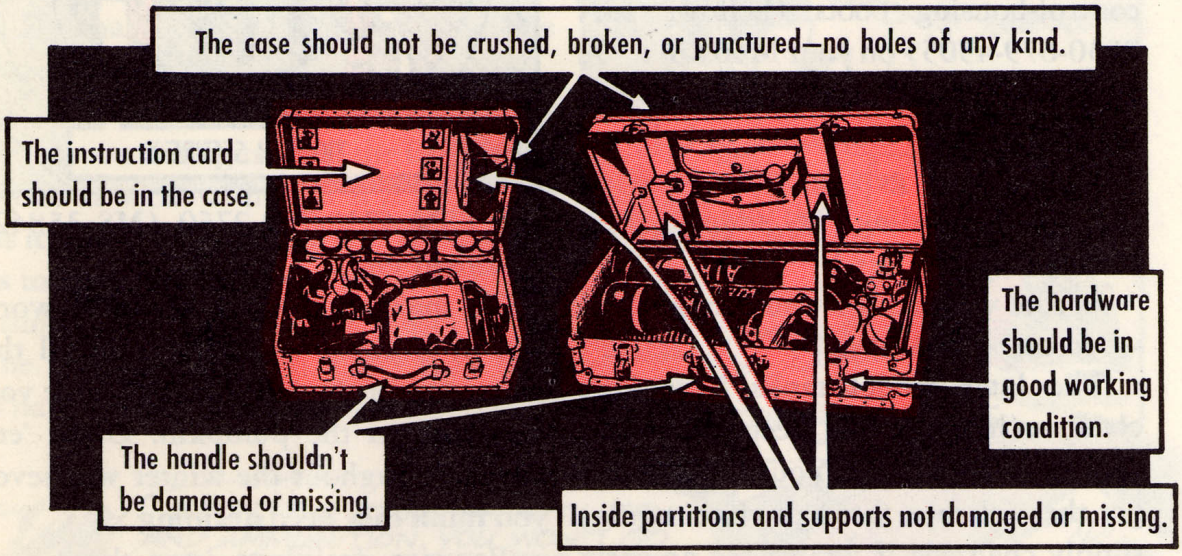


Word's been passed that some artistic types are applying the brush to flexible nozzle tubes on 5-gal gas cans with the idea of making 'em more handsome.

Now, man, you won't get anything but a beautiful mess of trouble thataway. Gasoline dissolves paint and when you shove the nozzle tube in and out a vehicle's fuel tank, some of that paint's gonna scrape off. Pretty soon you're gonna have clogged gaslines and carburetor trouble . . .

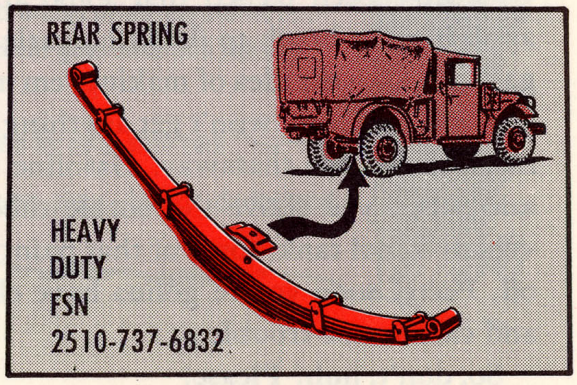
So, don't, huh? Please!

Unless you want to get gigged come inspection, give the carrying cases for your M13 oxygen generating breathing apparatus and the M15 compressed air breathing apparatus the onceover.



So, when you're checking out the M13 and M15, don't forget the cases need a check too.

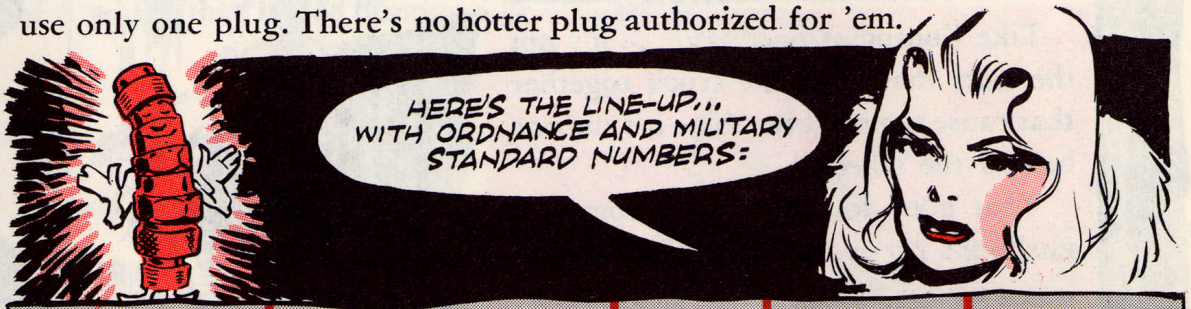
When you find the load in your ¾-ton truck, mounted on the M56B1 chassis, needs a bit of uplift, the heavy duty rear Spring, assy, leaf, FSN 2510-737-6832, listed on page 67 of TM 9-2320-212-20P (Feb 60) may be just the right medicine. It's for the M56B1 chassis when the regular spring's too weak.



You mechanics'll wanta know the latest on the spark plug for your **light** transport trucks . . . yes? The trucks are the ¼-ton, ½-ton and ¾-ton jobs of the G740, G741, G758, G823 and G838-series'.

Well, a bit of light broke thru the dark and out comes the poop on the **only** plugs authorized for their engines. You'll find it listed on pages 192-4 of TM 9-2300-223-20P (Mar 62), the Consolidated Authorized Organizational Stockage List of Repair Parts for Tank-Automotive Materiel (alias MPLL).

You'll notice that all of the smaller trucks (all except the M38A1 and M151) use only one plug. There's no hotter plug authorized for 'em.



TRUCK OR SERIES	NORMAL OPERATION FSN	ORD. NO.	MIL. STD. NO.	HOT PLUG FSN
¼-ton, M38-G740	2920-835-7724	8357724	35909.2	NONE
¼-ton, M38A1-G758	2920-835-7724	8357724	35909.2	
		8741671	35909.3	2920-726-9545
¾-ton, M37-G741	2920-835-7724	8357724	35909.2	NONE
½-ton, M274-G823	2920-726-9545	8741671	35909.3	NONE
½-ton, M151-G838	2920-752-4258	7524258	35909.1	
		8357724	35909.2	2920-835-7724

Since these particular plugs've passed the military standard test, and are established as standard, future production of these plugs will have the Military Standard number (or MS No.) stamped on 'em.

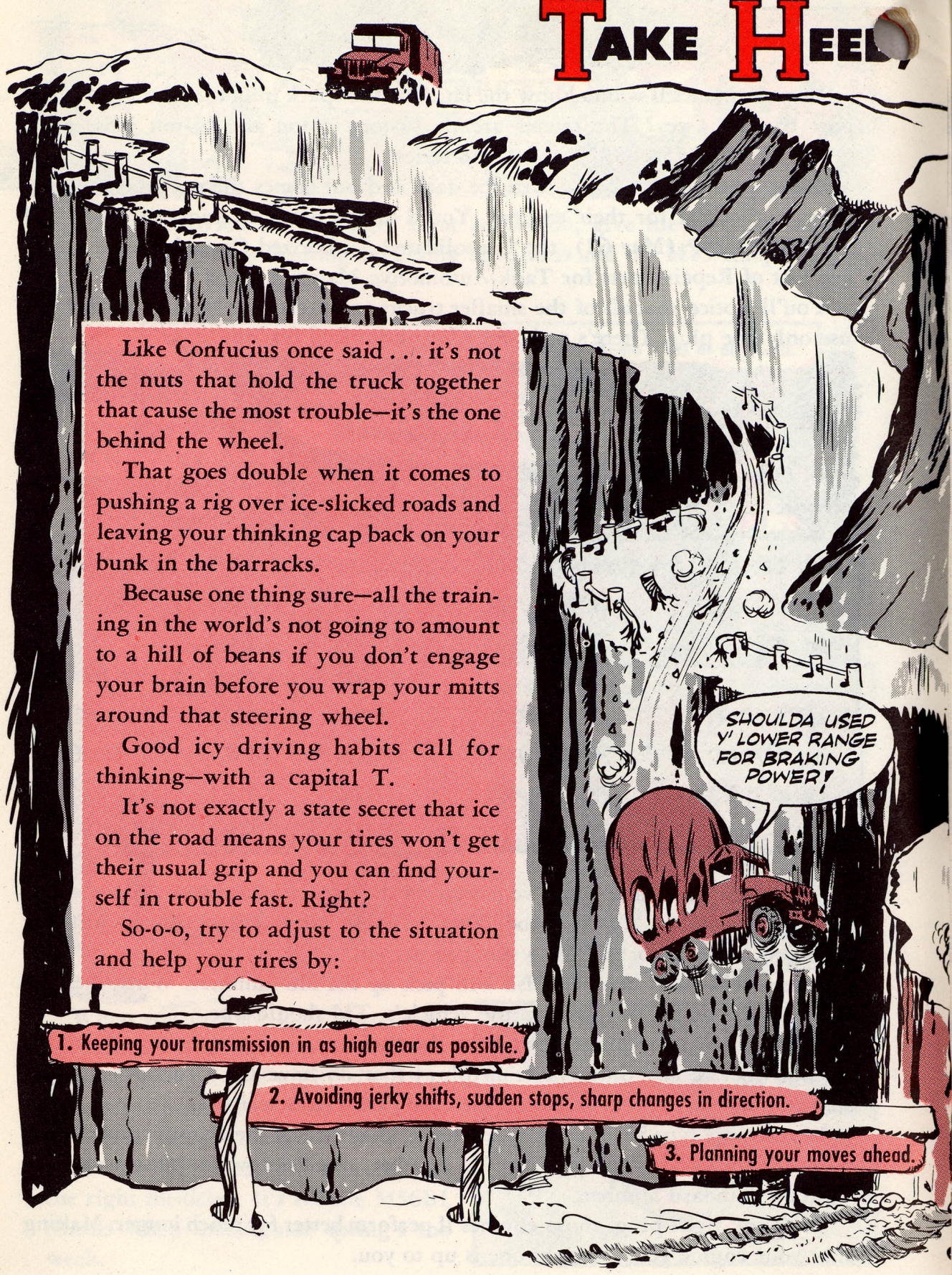
Future TM parts manuals also will pick up the MS numbers. When they do, MS numbers on the plug and in the vehicle's TM should jibe.

Just because some plugs don't have the Ordnance part number on them, it's no sign they're any different from plugs that do have the Ordnance number stamped on 'em . . . they're plugs with the same characteristics.

In reference type SM's, the MS number is identified by the manufacturer's code number "96906". When you see this number, you'll know the plug wears the Military Standard number.

With the right plug, those engines'll perform better for much longer. Making sure your engine gets the right one is up to you.

TAKE HEED!



Like Confucius once said . . . it's not the nuts that hold the truck together that cause the most trouble—it's the one behind the wheel.

That goes double when it comes to pushing a rig over ice-slicked roads and leaving your thinking cap back on your bunk in the barracks.

Because one thing sure—all the training in the world's not going to amount to a hill of beans if you don't engage your brain before you wrap your mitts around that steering wheel.

Good icy driving habits call for thinking—with a capital T.

It's not exactly a state secret that ice on the road means your tires won't get their usual grip and you can find yourself in trouble fast. Right?

So-o-o, try to adjust to the situation and help your tires by:

1. Keeping your transmission in as high gear as possible.

2. Avoiding jerky shifts, sudden stops, sharp changes in direction.

3. Planning your moves ahead.

TAKE HEED

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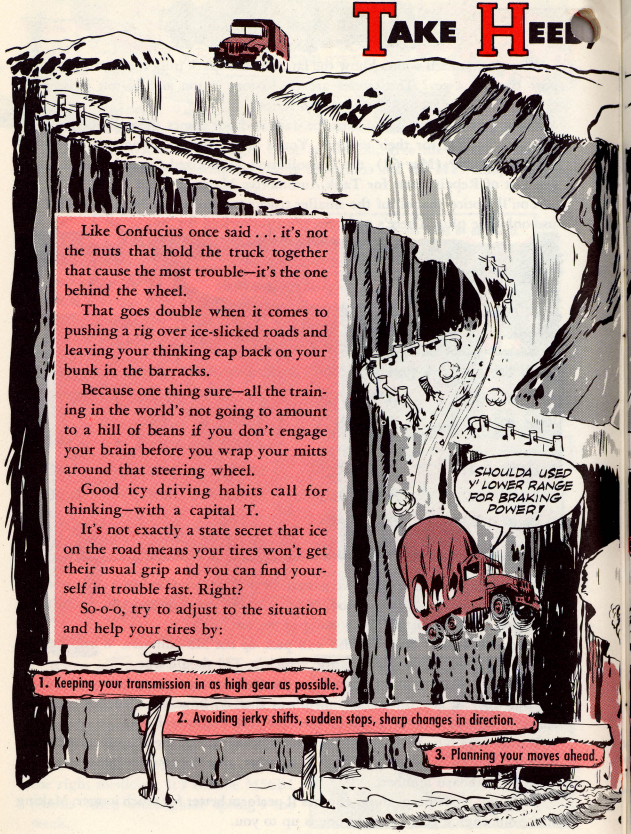


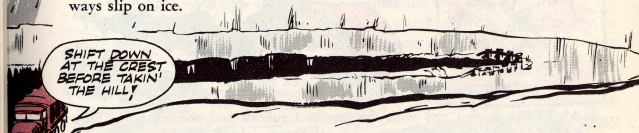
ICE NEVER KIDS

Keeping your transmission in as high gear as possible.

Use the highest gear possible while driving on ice and you buy yourself one big important advantage . . . it cuts down on the spinning of your wheels.

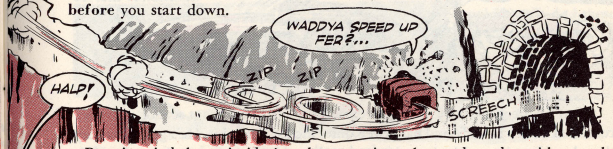
The lower the gear you shift into on ice, the tougher it is to move without spinning your wheels. And a spinning wheel has only a fraction of the traction of a wheel that is not buzzing like a buzzsaw.

Another strike against using the lower ranges in level driving is that they have a greater braking power and can slow your wheels down to a fast sideways slip on ice.



So, stick with the highest gear that will pull the load without stalling out the motor—that also lets you use more throttle to your advantage.

On the other hand, though, anytime you're faced with a long, slick downgrade, stop at the crest and shift down to a gear that'll help you keep control—**before** you start down.



Bear in mind the main idea's to keep moving—slow and steady—with enough forward motion to keep traction on those tires.

Too much speed sets up spinning wheels, loss of traction and a gizzard-gulping skid that's not half the fun it used to be, back in the old sleigh-riding days.

MORE

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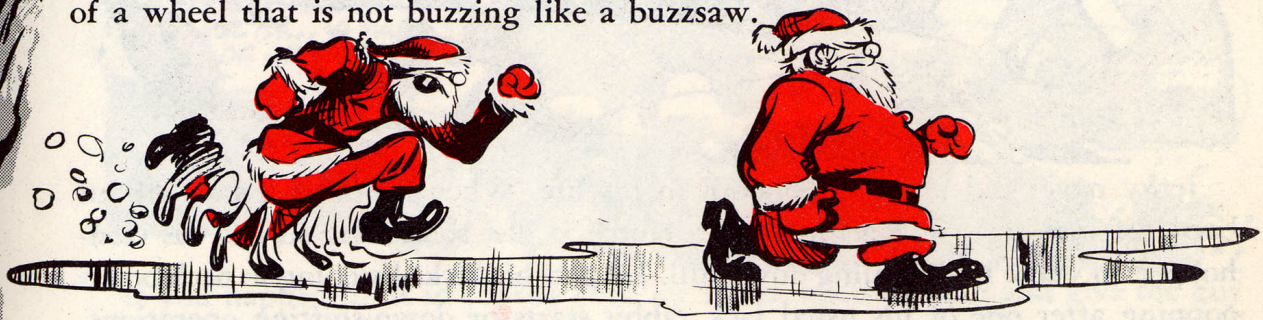

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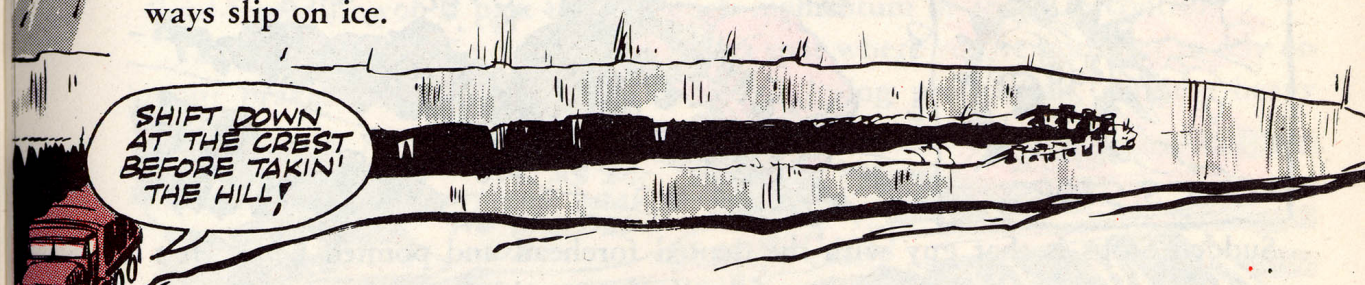

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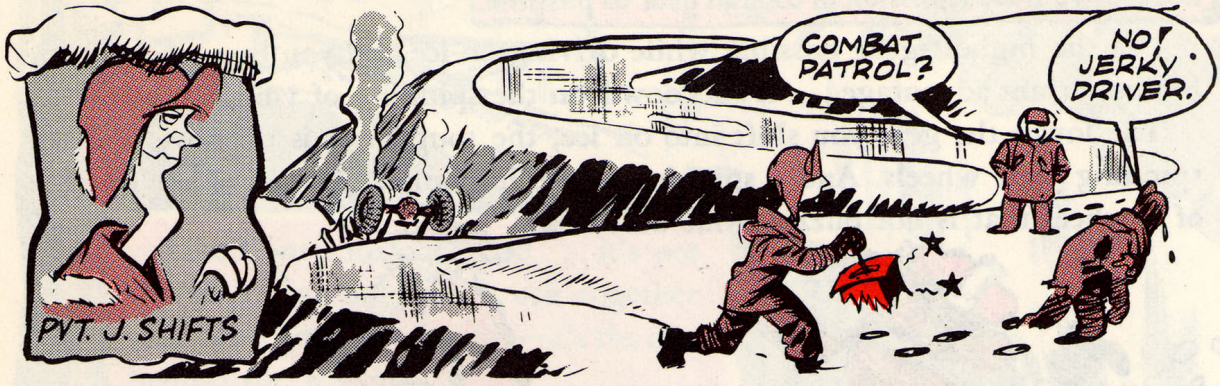
PS MORE

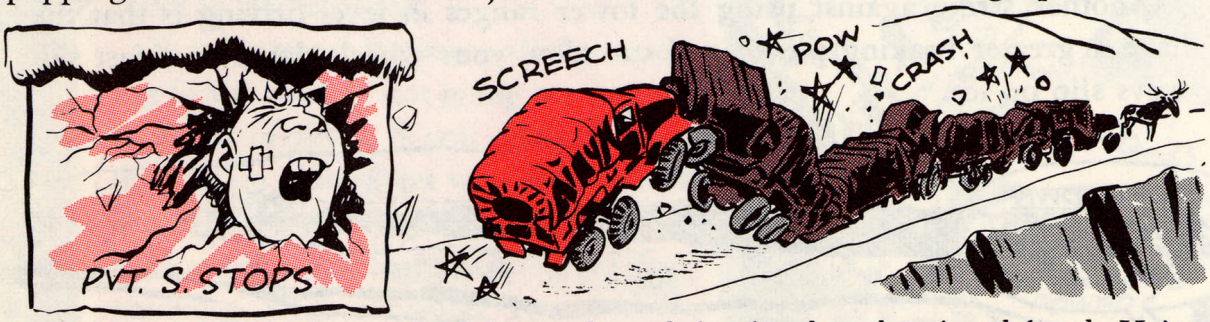
Avoiding jerky shifts, sudden stops, sharp changes in direction.

Privates Jerky Shifts, Sudden Stops and Sharp Changes are three guys you should keep out of your vehicle—even on bright sunny days.

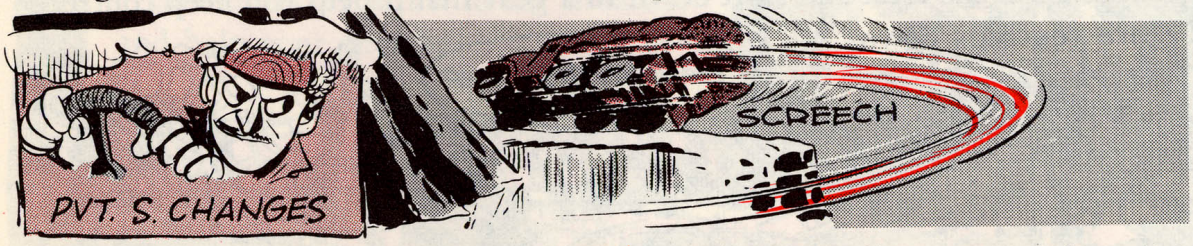
And, when Dame Nature has made driving a little rougher by dotting your route with sparkling patches of frozen H_2O . . . Man, they have just gotta go.



Jerky never did anything smooth in his life. When he shifts it's an all-out battle of man against machine and a clutch is just something to rest his clod-hopper on while high-balling down hill. He gets his kicks listening to neck bones popping after one of his usual jack rabbit starts or down-shifting operations.



Sudden Stops is that guy with the dented forehead and pointed head. He's never been known to slow down gradually for anything and is a former test driver for a car safety belt outfit that has since gone broke. Any stop this kookie makes, that doesn't drape five riders over the cab of his truck and one guy through the windshield, he considers a flop.



Sharp Changes spent the first ten years of his life in the front seat of the roller coaster at Coney Island—and has never quite kicked the habit. He's got the theory that the sidewalls on his tires give a smoother ride than the treads—and spends all his driving moments trying to prove it.

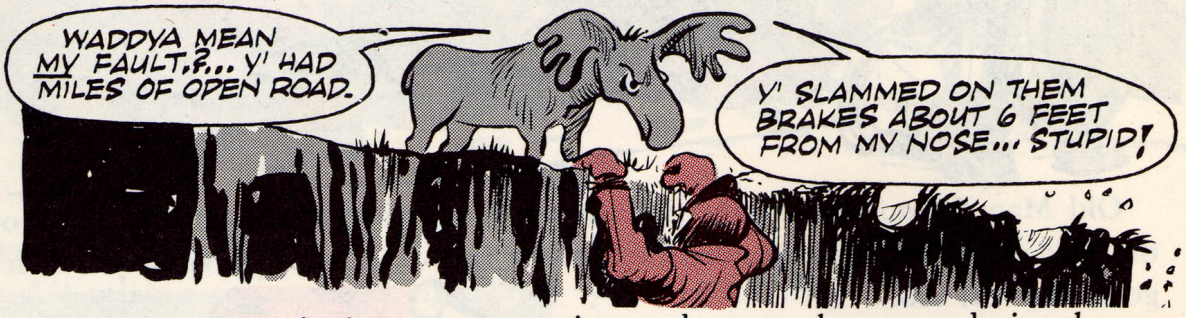
Good driving habits—'specially on ice—mean all-out control at all times. So drop this gruesome threesome by the roadside, fast.

Planning your moves ahead.

Finally, when you're moving into an area that has Skidsville written all over it, plan your moves ahead and save yourself lots of grief.

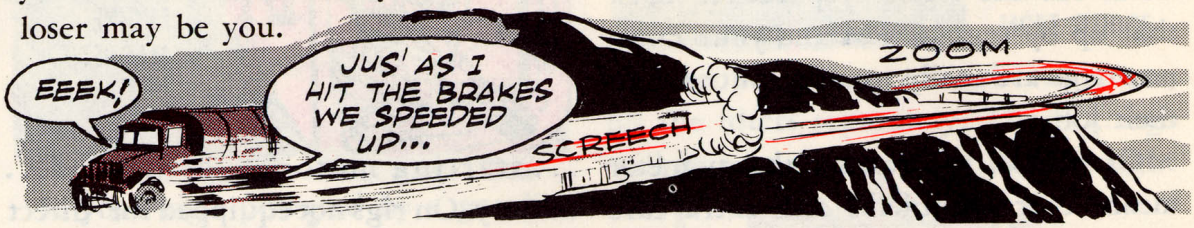
F'rinstance, if there's a stop up ahead, get your foot off the gas back far enough so that gradual engine compression can slow you down in time. This way when you touch the brakes—lightly, on-off, on-off—you still have a fighting chance of keeping traction on the tires.

Roaring into an ice-slick and slapping on your brakes is just a new version of rushin' roulette—'cause when you hit those brakes, you've had it.



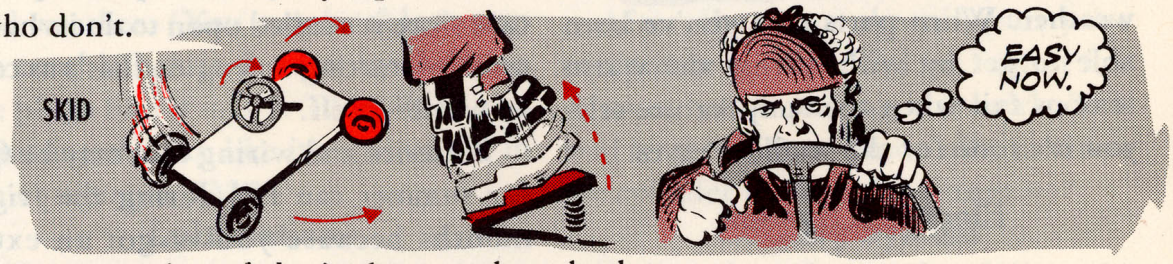
If you happen to be in convoy over icy roads, open the gap and give the guy in front plenty of time to make a hill before you start your move. Downhill—make sure you're in the right gear before you start down, go easy and don't get lead-footed or you'll pick up too much momentum or speed to control.

Don't let yourself get suckered into a spot where you've gotta try to rely on your brakes instead of your brains—it's a losing proposition, and the heavy loser may be you.



Natch—no matter how careful you are and how much you think—there's no surefire guarantee that even the best driver can't find himself in a skid under certain conditions.

And here's where they separate those who use that greasy kid stuff—and those who don't.



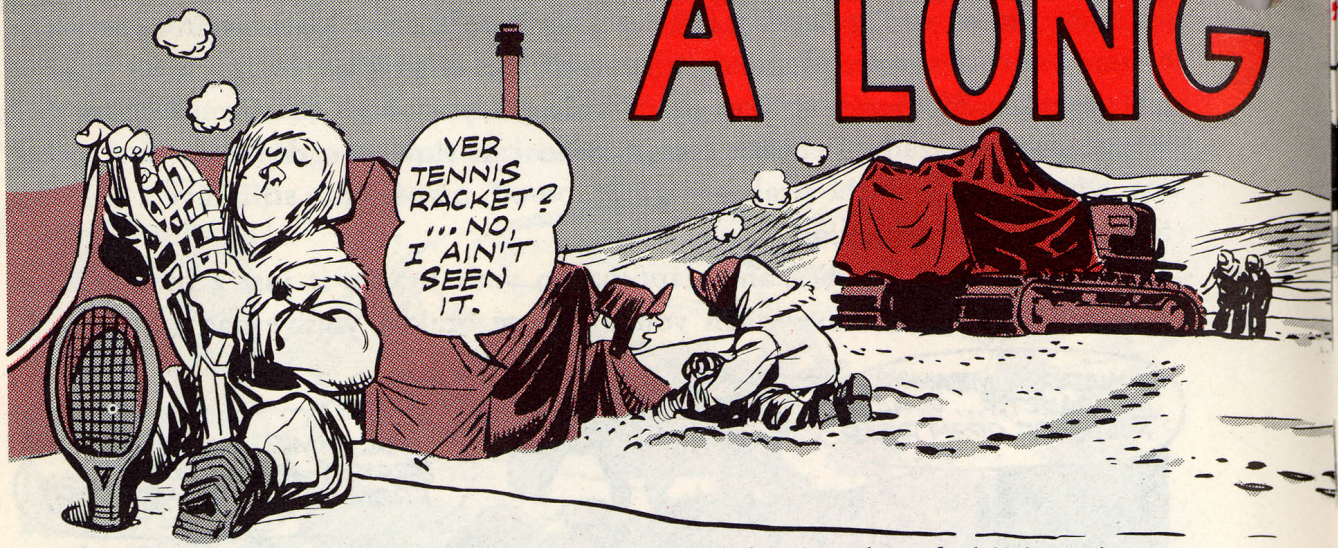
Don't panic and don't slam on those brakes.

Remember your training . . . turn the front wheels in the direction of the skid, ease up on the gas to give the engine compression a chance to help slow down the sliding action, take a deep breath—and hope for the best.

PS END

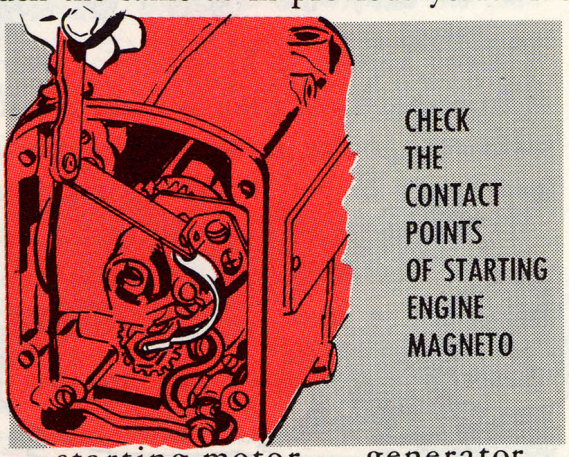
GET YOUR ENGINEER EQUIPMENT READY FOR...

A LONG



Old Man Winter is just about ready to put his icy, blood-chilling show on the road. With an icicle-studded cast—much the same as in previous years—it's gonna be real cool.

Many old-timers can look back to when the arrival of Old Man Winter and his brass-monkey troupe used to mean the shutdown of all heavy construction equipment... not so anymore. Give 'em the right preparation, back that up by regular PM and your Engineer rigs are ready to move out and do their job.



CHECK THE CONTACT POINTS OF STARTING ENGINE MAGNETO

Of course, the falling thermometer means extra problems and extra care for all types of equipment—in particular, Engineer. You can't expect tractors, graders, or generators in poor shape to start and to operate right in cold weather. Worn parts that you've been able to get by with during the warm seasons fail when the temperature tells you it's time for the waffle-weaves.

Electrical System

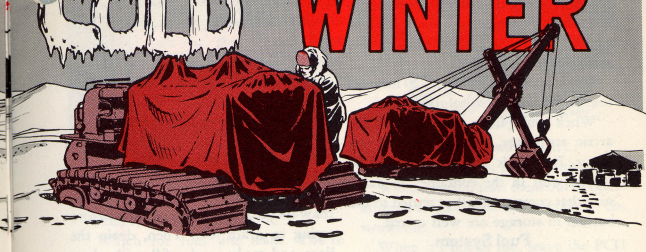
Before Old Man Winter hits your area and you get hung up by the dipping mercury, you need to check over the entire electrical system . . . wiring . . . starting motor . . . generator . . . battery. On rigs not equipped for direct cranking motor starting, you need to give special attention to the starting engine magneto.

The electrical system requires special care since it's called upon to do its hardest job—starting an engine that's as cold as winter itself.

Batteries and wiring that may be OK for summer can fail during the frigid months because you've got an extra drain on the system. This is in addition to the normal drag you get when you crank a cold engine . . . and the longer time it takes to turn it over when the

GET YOUR ENGINEER EQUIPMENT READY FOR...

A LONG COLD WINTER



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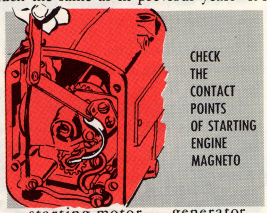

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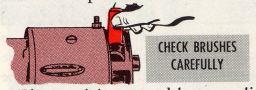
All wiring connections tight and clean?

Give the brushes in the generator and cranking motor a look-see and change them if they're badly worn. Pitted armatures and those with high mica should be replaced also.



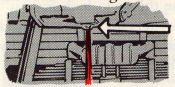
CHECK BRUSHES CAREFULLY

If your rig's powered by a gasoline engine and it won't start, check the spark plugs for any sign of any ice or moisture. Handle 'em carefully; it's easy to crack or break the insulators in cold weather. (You may be able to stop the trouble before it starts by checking the plugs like it says in TM 9-8638 and adjusting the gap like it's spelled out in the equipment TM.)

Lubrication

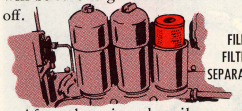
Of course, you follow the LO for your rig and use the lubes that're called for.

When you get ready to change to a winter-weight oil like your LO says, first warm up the engine and exercise your rig to bring up the lubes to operating temperature. More sludge will then be carried away when you drain the summer-weight oil.



DRAINING AT OPERATING TEMPERATURE BRINGS OUT MORE SLUDGE

When you change oil in the crankcase, fill the filters separately. The bearings will be sure to get their full lube right off.



FILL FILTER SEPARATELY

After changing the oil, run your equipment without load for four or five minutes before putting it to work. This will let the thinner winter oil work over the cylinder walls and bearings.

Cooling System

Before draining and refilling the cooling system with antifreeze, eagle-eye the system for leaks and other damage. See any worn, damaged hoses? All

MORE

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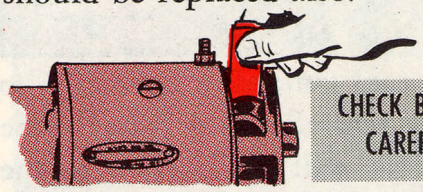

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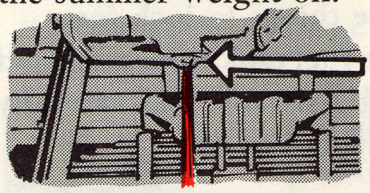

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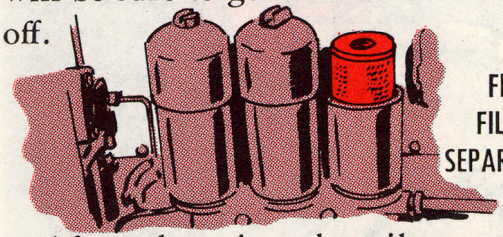

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PS MORE

clamps tight? Draincocks closed right?

When you add antifreeze to the cooling system, leave enough space for it to expand when the engine comes up to operating temperature.

Operate the engine for 15-20 minutes to mix the antifreeze solution.

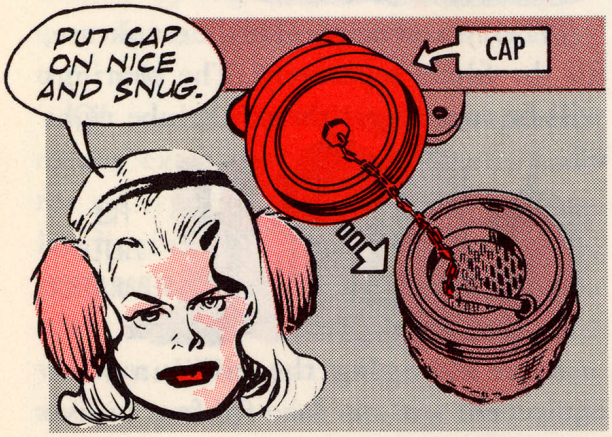
When you're in an area that calls for arctic antifreeze, you won't add any water. But arctic antifreeze should be stirred well in the container to make sure that components that settled to the bottom in storage are well mixed.

Fuel System

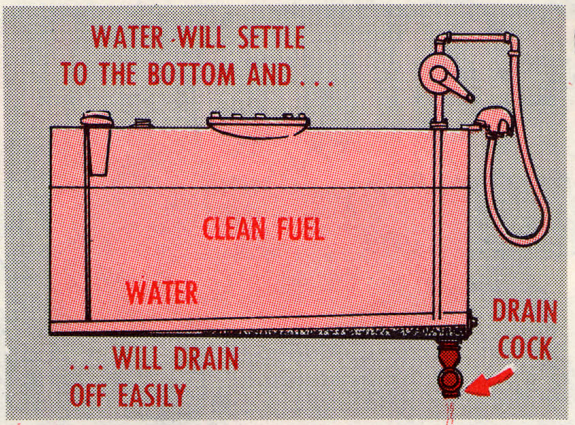
When the deep freeze arrives, the condensation of moisture will cause water to accumulate in tanks, drains, and containers. This water will freeze and clog your fuel lines.

Here's some things to look for:

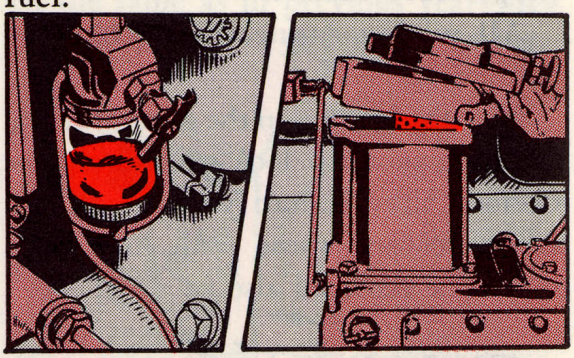
Snow in the fuel tank. You can avoid this by filling the tank real carefully and putting the cap on snug.



Water in fuel container you use to fill the tank. Be careful to keep snow out of those cans and keep 'em capped tight when not in use. If water gets in the fuel, drain the fuel tank from the bottom-most plug. Since water is heavier than fuel, it'll settle to the bottom and drain off easily.



Ice in the fuel lines and tank can be another headache. Where possible, thaw the ice in the lines and tank before trying to drain 'em. Then, drain the lines and tanks, and refill with clean fuel.



Fill the fuel tank after operation to head off condensation. Any water in the gasoline tank will get carried to the sediment bowl of the gasoline strainer, and any water in the diesel fuel system will be carried to the diesel fuel water trap.

To prevent freezing, it's important to drain the sediment bowl and water trap more often than when it's warmer.

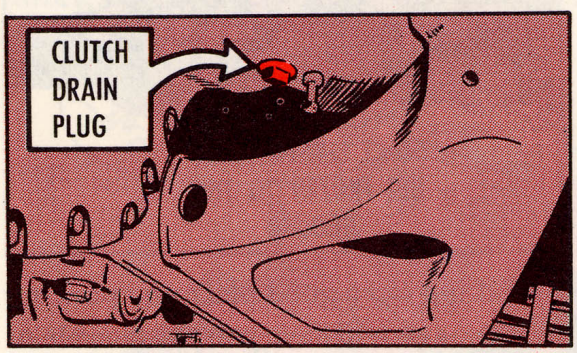
Drain and clean the air cleaner with mineral spirits. As long as there's no snow, refill the air cleaner with the oil your LO calls for. But, if you've got deep snow, just add about half the normal amount of oil to the air cleaner. This way, when water collects, the oil level won't rise to a point where it'll get sucked into the engine.

See that the priming system is installed and works OK. Remember you'll need to prime a little more in cold weather, but don't overdo it.

Watch for fuel line leaks. You're likely to get more of them in freezing temperatures.

Steering Clutches

Make sure the drain plugs are snug in the steering clutch housing. When

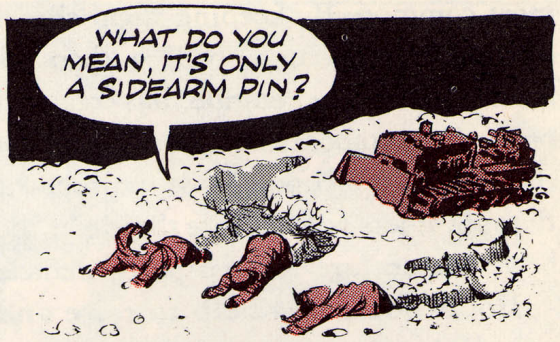


water gets in the steering clutches and freezes, you get no response when you tug at the levers and figure the clutches are burned out.

Use an M40 slave kit or a Herman Nelson heater to thaw 'em out.

Dozer

Double-check the sidearm pins on the dozer to see that they've got cotter pins to hold 'em in place. Makes a guy red-faced to find his rig sidelined for the lack of a sidearm pin.



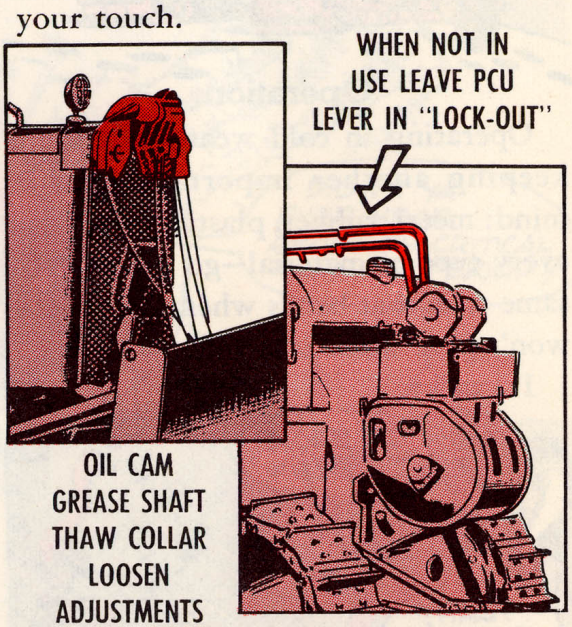
Power Control Unit

You can't neglect a PCU either.

When the cold puts them out of operation, it takes a little doing to make 'em workable.

When it's not in use, leave the PCU control lever in lock-out position to keep the brake band from freezing to the cable drum.

Try oiling the cam, greasing the shaft, thawing the collar, and loosening the adjustment to make 'em respond to your touch.



Special Attachments

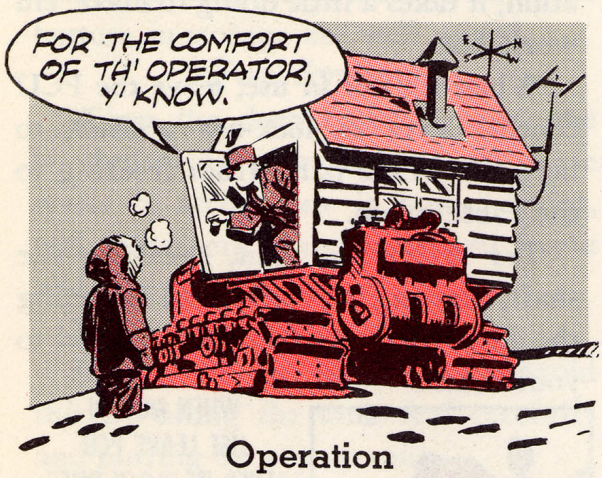
You've got a lot of special attachments that make the operation of a crawler tractor more efficient during the winter season.

Radiator shutters are probably the

PS MORE

most common. By keeping them closed during starting and opening them as needed after the engine has reached operating temperatures, you cut down the warm-up time. Most important though, it lets you operate the rig at the best temperature for top performance.

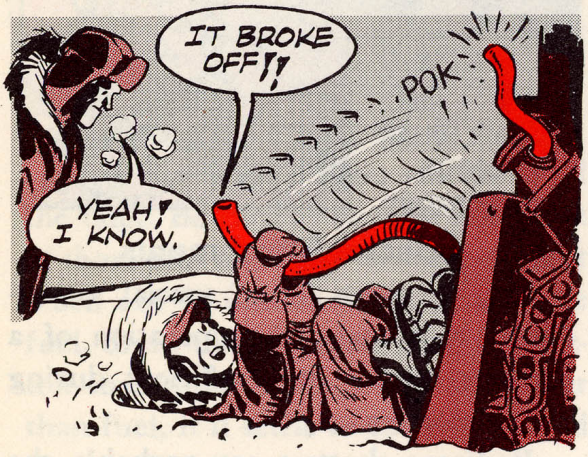
Hood side-doors help to raise and equalize temperatures. A canvas or frame housing also does a good job of providing summer-time warmth and comfort for the operator.



Operation

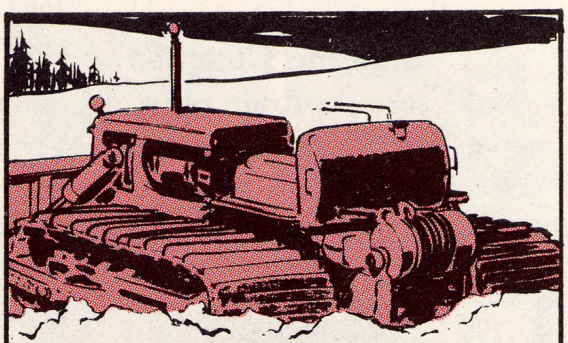
Operating in cold weather calls for keeping another important item in mind: metal, rubber, plastic—just about every type of material—go brittle. The same stuff that bends when it's warm—won't give when it's cold.

It cracks.



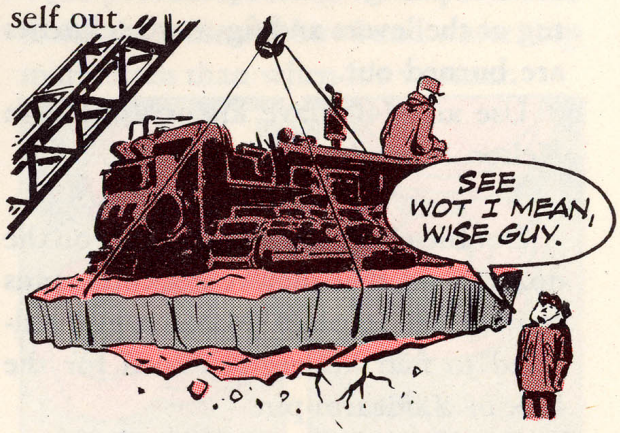
So, before you do a job that'll strain your rig or one of its parts, keep in mind that you'll get a break before you get a bend.

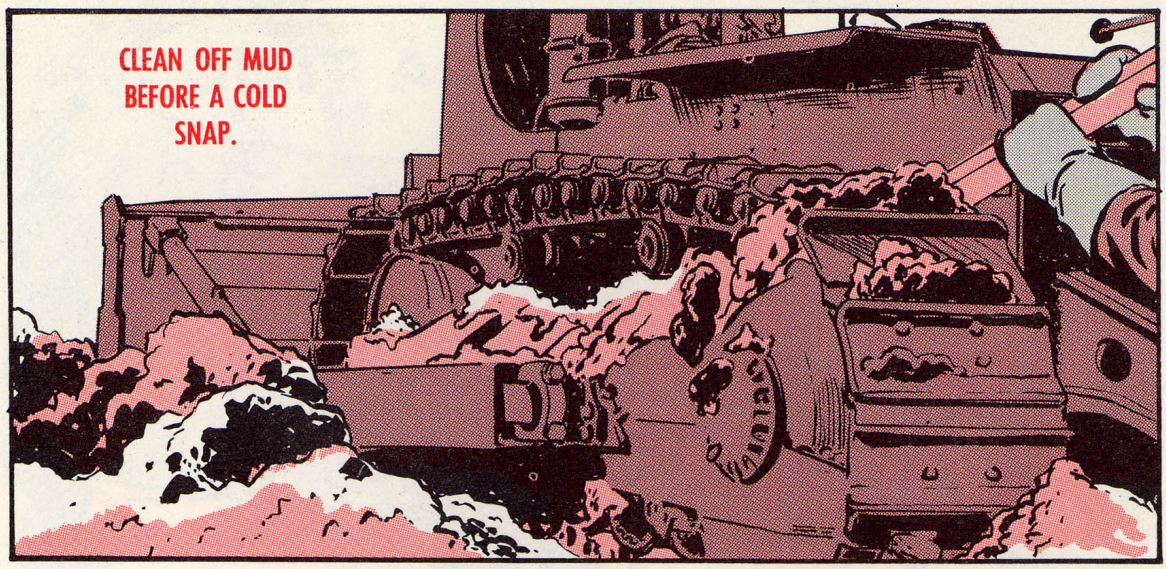
At the end of a day's work, think about the next day. Park tractors and other rigs on ground that'll be the same in the morning as it was the night before—meaning that the afternoon sun sometimes softens up the ground in the winter. Park a rig there overnight, and she'll sink a little. Next morning when the mercury's lower than it was the afternoon before, your rig'll be frozen to the ground.



DON'T LET YOUR RIG GET FROZEN TO THE GROUND

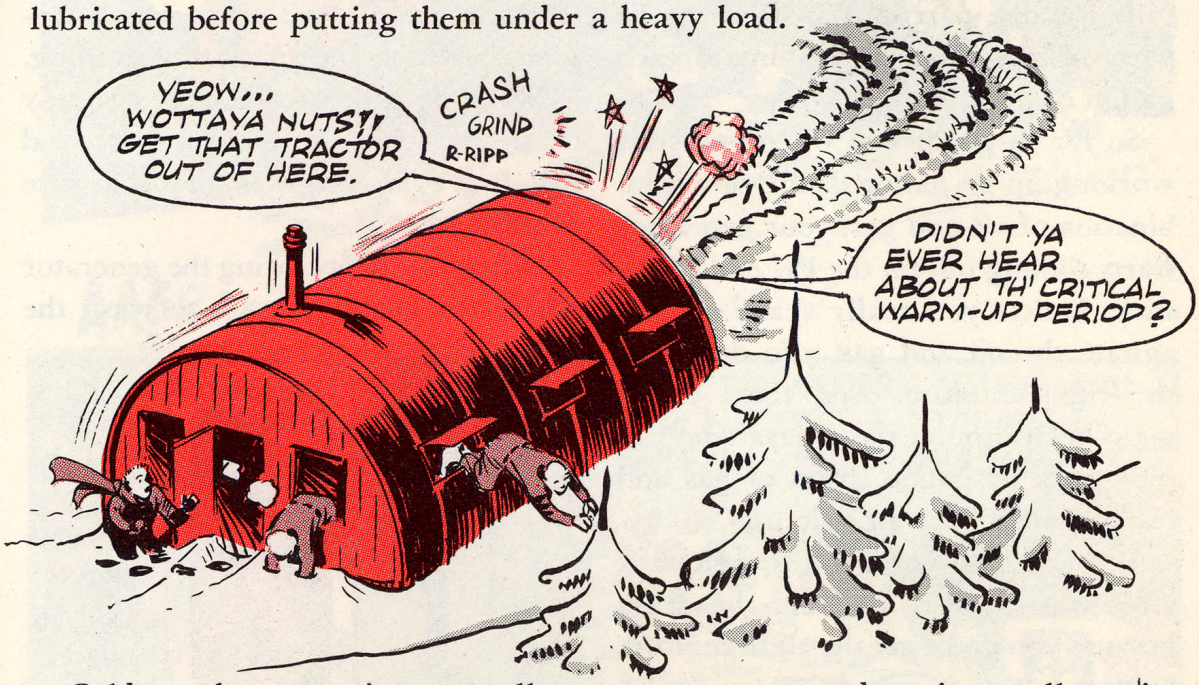
Picking out a good place and parking on dunnage will save you the trouble of trying to break things loose . . . to say nothing of the damage you can do to your rig if you try to let it muscle itself out.





'Nother thing, if you're working in wet dirt on a fairly warm day and a cold snap is expected that night, clean mud off parts that'll bind when the mud freezes. It'll be easier to do the job then instead of the next day.

Remember that the most critical period of cold-weather operation is when the unit is first put to work each day. Warm up carefully—not only the engine, but the whole tractor. You move and warm it up gradually to get all parts well lubricated before putting them under a heavy load.



Cold weather operation naturally puts more stress and strain on all moving parts. It makes good sense then that you ought to do everything you can to reduce the wear and tear that occurs at low temperature.

Winter and extreme cold operation can't be sluffed lightly—it's real rough on both men and machines. It won't ever be pleasant, but careful preparation and regular PM services can make cold weather operation pay off.

END

PU HIGHBALLS . . .

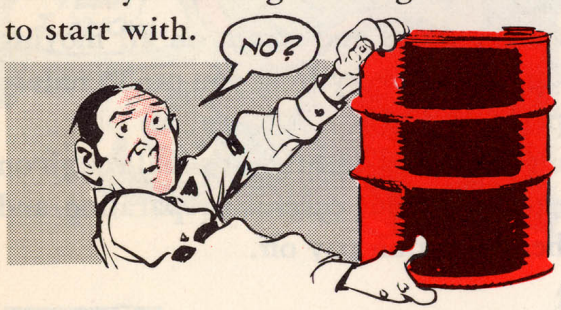
A DRINK AT A TIME

Plan ahead, the man says . . . but sometimes you can carry it too far.

Like with the lubricating oil for your PU-450/G generator set. That engine calls for one part of OE-30 oil to 16 parts of gasoline. Or ½-pint to each gallon of gas.

So far so good. But when you start working up 55-gallon drums of a combination of oil and gas, your generator starts coming out on the PU end of the stick. Unless you really shake up and agitate the oil and gas, you don't get the right mixture. And there aren't many men around these days who can pick up a 55-gallon drum of gas and oil and make like an agitator.

It doesn't do any good to agitate it after you draw it off from the drum because you don't get the right mixture to start with.

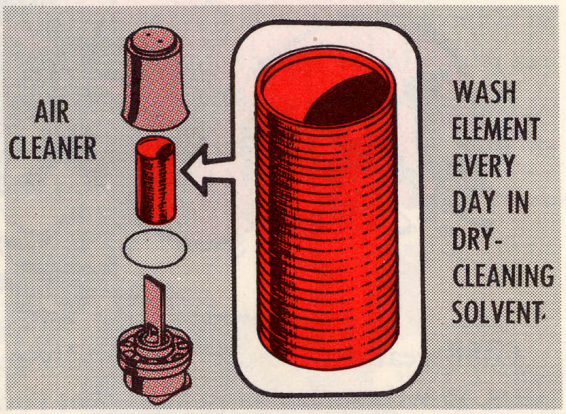


Nope. Your best bet is to mix up the right combination in small quantities so that the engine gets the oil it needs—no more, no less.

Too much oil will cause uneven engine operation and spark plug fouling.

With too little oil, the engine simply heats up, seizes, and burns out. And it'll do it every single time, just as sure as shootin'.

When you're operating the generator where it's dusty, be sure to wash the



carburetor air cleaner element every day in a dry-cleaning solvent. Just this simple step will go a long way in keeping your PU putting out.

JOE'S DOPE

SHAPE UP OR SHIP OUT

'Twas the night before the night before Christmas and the snow swirled about the legendary abode of Santa Claus... The stars twinkled brightly in the frosty air... the lights in the Work shops cast a warm glow on the deep drifted snow... Harmony and tranquility reigned supreme....

AAGHAGRAAAHHH

NORTH

AAGRAAA WE'LL NEVER MAKE IT!! SOB

DEC 23 ONE MORE DAY, PAL!

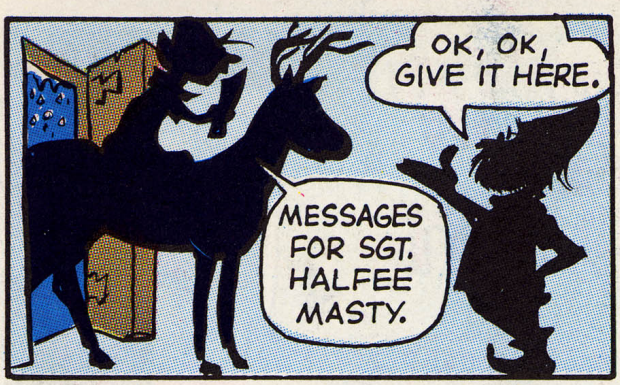
TELPHONE DIRECTORY

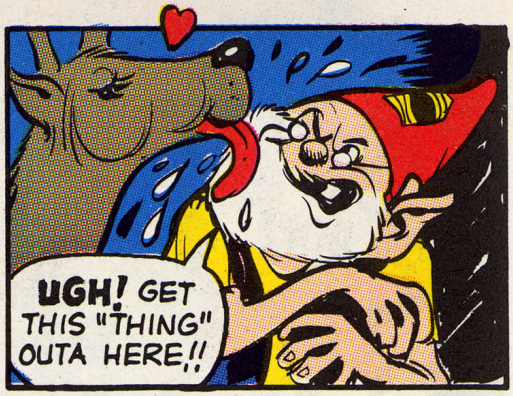
RIP

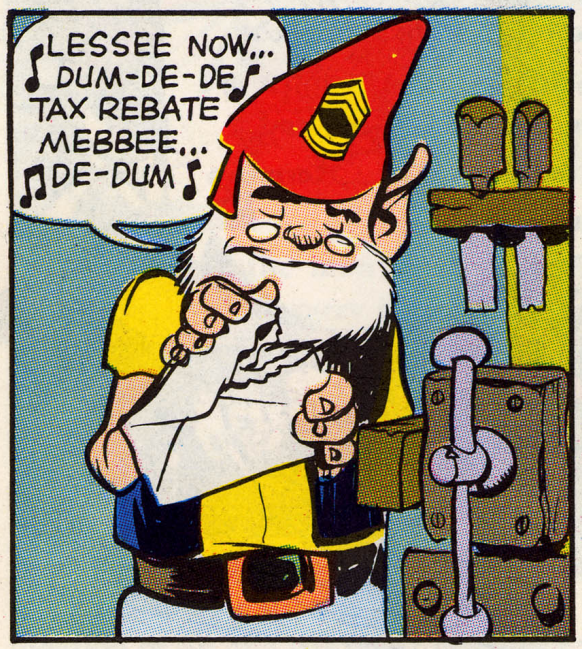
GROAN ONE DAY BEFORE "C" EVE, AND EIGHTY PERCENT OF THE TOYS ARE IN THAT G!!*!**UGH*! DEADLINE BIN...

CLUNK

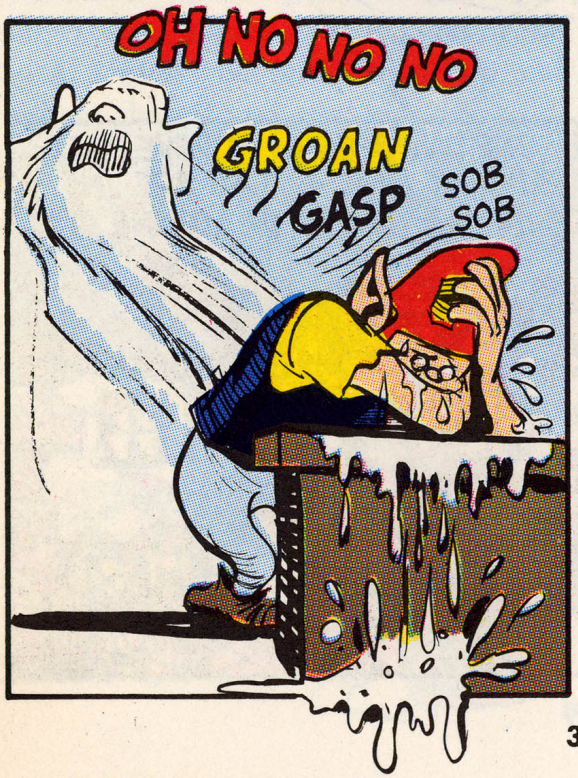
Deadlined TOY BIN


OK, OK, GIVE IT HERE.
MESSAGES FOR SGT. HALFEE MASTY.


UGH! GET THIS "THING" OUTA HERE!!

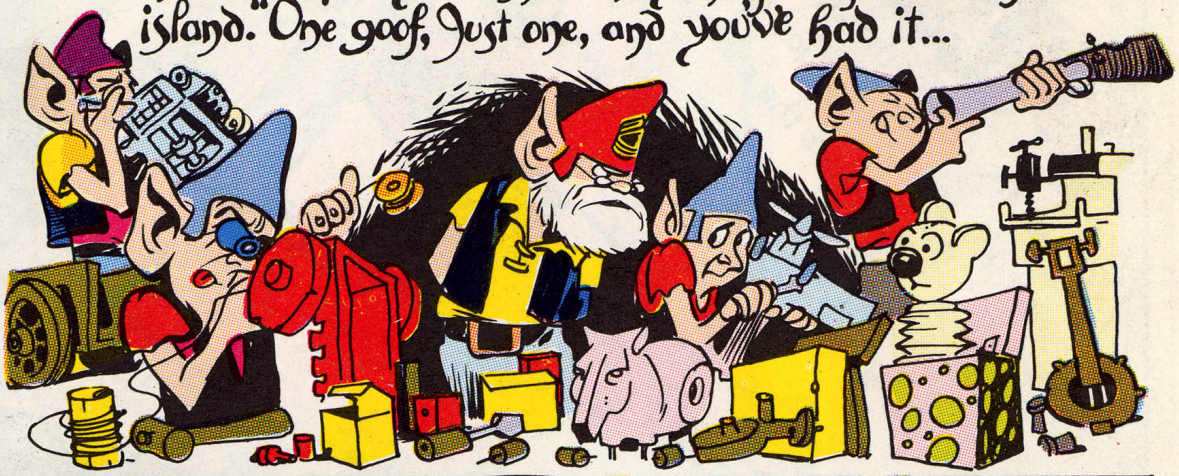

LESSEE NOW... DUM-DE-DE TAX REBATE MEBBEE... DE-DUM

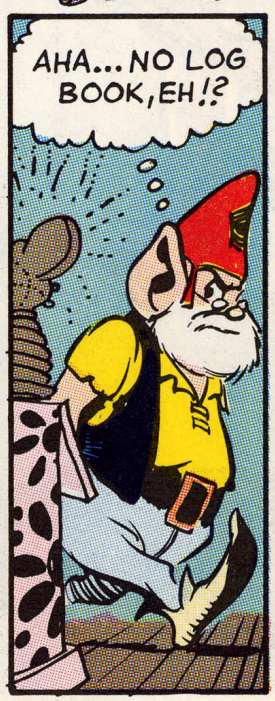
EEK!

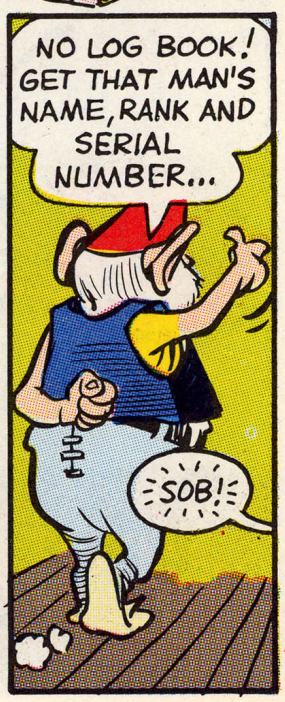

OH NO NO NO
GROAN
GASP
SOB SOB

W-WHAT'S TH' MATTER, SARGE?
WOTS THE MATTER!!? EVERYTHING... THAT'S WOT. THE "OL' MAN" KNOWS ABOUT THE DEADLINED TOYS :SOB: SO HE'S GONNA PULL A CMRI FOR CHRISTMAS EVE... AND THAT'S NOT THE WORST...

And so... the workshop rings with activity... Nervous hands check every toy.. Pushed on by the fear of "No Hope island." One goof, just one, and you've had it...







IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETI

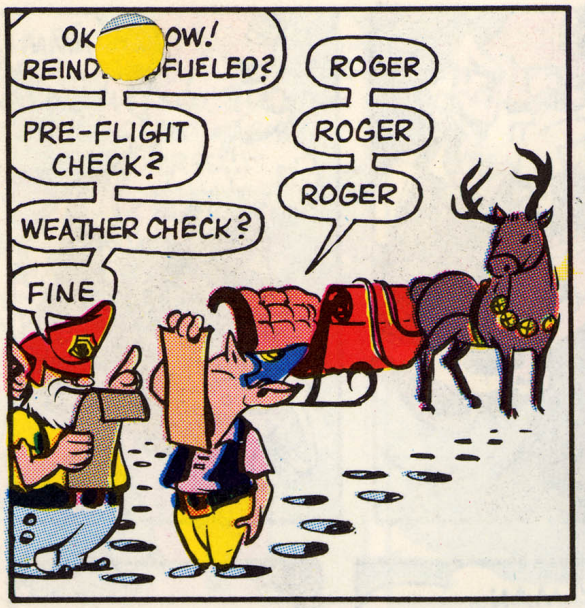
IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

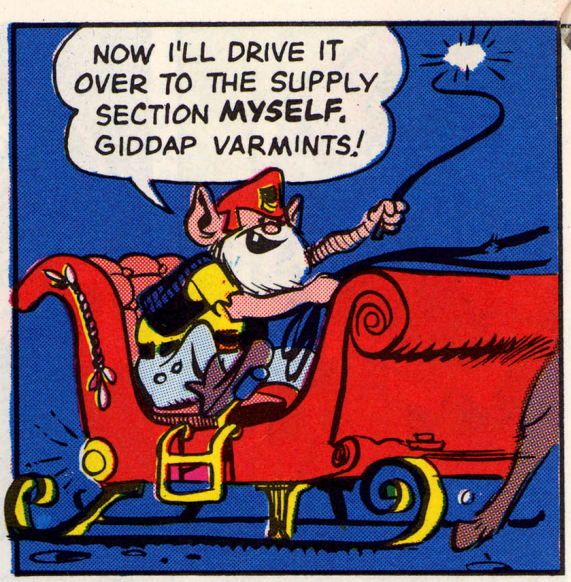
QUIPMENT ...Take care of it

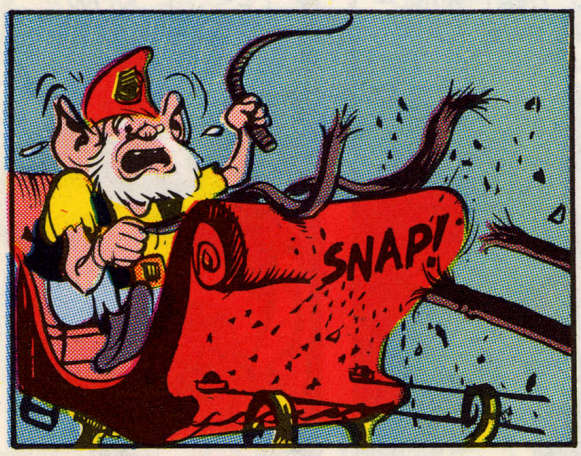
IN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

ULP- E HE COMES... GASP... HE PAST THREE HUNDRED YEARS, NOTHING THIS CHICKEN HAS EVER OCCURRED...
NICE TRACTOR TOY YOU'VE GOT THERE. HAS IT BEEN TESTED?
YESSIR! RAN IT FOR THREE DAYS OUT IN THE SNOW... WORKS GREAT...
FINE! LET'S SEE!
CHUG! CREAK!
GRIND! SQUEEK!
WELL?
THIS OIL IS LIKE TAFFY... Y' DIDN'T CHECK THE LO FOR CORRECT COLD WEATHER LUBE INFO.
CLERK! GET THAT MAN'S NAME, RANK AND SERIAL NUMBER; CARRY ON!
SO... YOU LEFT THIS TRUCK TOY OUT LAST NIGHT WITH THE PARKING BRAKE SET, AND IT FROZE UP AND BROKE, HUH?
OOF!
THUNK!
HERE! TAKE IT...CLERK, DO YOUR ASSIGNED DUTY.

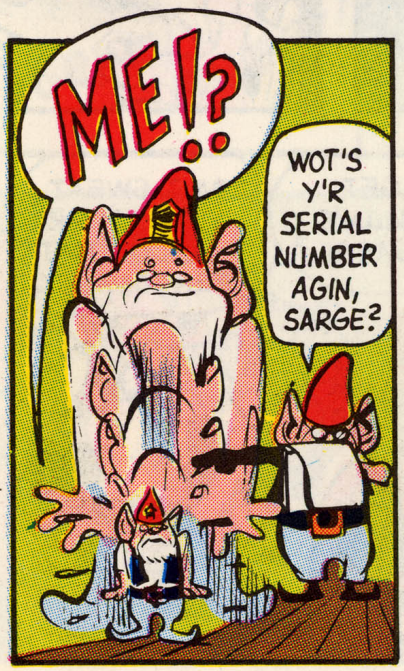
HMM
ZIP
FLIP
LEFT IT OUT IN THE SNOW, HUH?? TRACKS FROZE UP, HUH!? BROKE 'EM STARTING IT UP, HUH!? CLERK!! THERE'S A FUNGUS AMONG US... HIS NAME, RANK AND SERIAL NUMBER, PU-LEEZE!
AHAA! MAN-HANDLED THAT WINDSHIELD ON THIS CAR TOY OUT IN THE EXTREME COLD AND YA BUSTED IT... WELL, THAT'S ALL SHE WROTE, TROOPER.
LESSEE NOW! FIVE DOWN, ONE T'GO...
ALRIGHT. ATTENSHUT!... DIS-SMISSED--- NOW START LOADING THEM TOYS... TIME FOR TH' OL' MAN TO MOVE OUT. GET ON THE STICK!!
HUP HUP
SHALL I GET THE OL' MAN'S SLEIGH, SARGE?
DON'T SWEAT IT, TROOPER. I'LL DO THAT PERSONALLY.


OK NOW! REIND FUELED?
PRE-FLIGHT CHECK?
WEATHER CHECK?
FINE
ROGER
ROGER
ROGER


NOW I'LL DRIVE IT OVER TO THE SUPPLY SECTION MYSELF. GIDDAP VARMINTS!


SNAP!

+☆!!*?@!*? WHO'S THE NINCOMPOOP THAT JUST SLICKED THIS LEATHER TILL IT SHONE INSTEAD OF MAINTAINING IT? THIS TIME SPIT N' POLISH DIDN'T CUT THE MUSTARD. NO SIRREE...WHO DID IT?
YOU... SARGE


ME!?
WOT'S Y'R SERIAL NUMBER AGIN, SARGE?

HEY, SARGE!! WOTCHA DOING HERE ON THIS "PIG"? THOUGHT YOU WERE "RAMRODING" THAT SANTA CLAUS OUTFIT... A REAL SOFT DEAL!
AHHHHHHHH, SOME FOULUP IN PERSONNEL... MISTYPED ORDERS... I'LL BE OUTA HERE IN NOTHIN' FLAT.

Dear Half-Mast,

We're having trouble finding the manuals that cover the OVM listings on our tactical wheeled vehicles. We know they're around but don't know where. Where do we find them?

SFC K. W. D.

Dear Sergeant K. W. D.,

Looks like you're in the same spot as Little Bo-Peep, only the OVM listings won't come home to you if you leave them alone; you have to go out and look in the right place to find them.

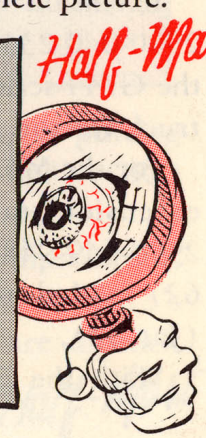
Some OVM listings are in the Ord 7 SNL's, another is in the -10 TM (operator's) and others are in TM changes. In many cases the TM changes get lost or they never meet up with the TM; without the changes you're left in the dark.

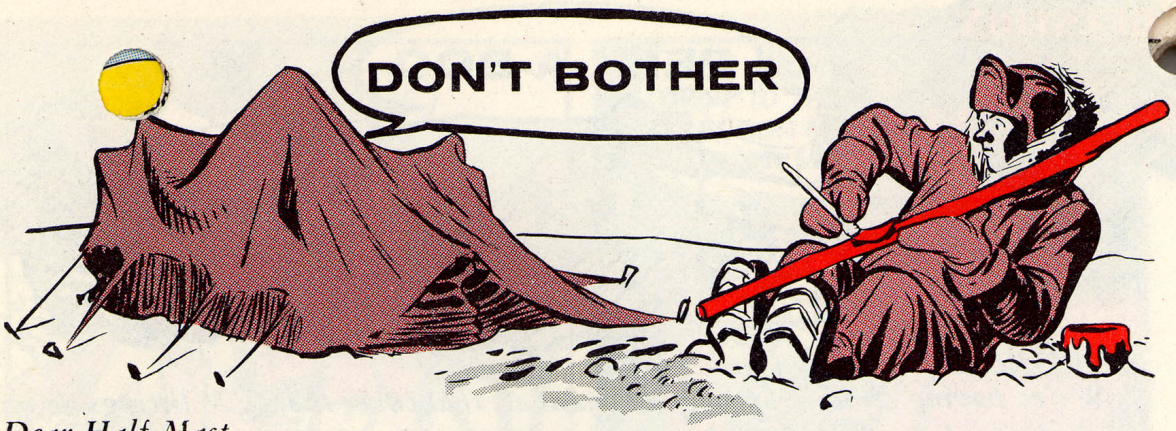
All these publications are current and are listed in the latest DA Pamphlet 310-4 (Apr 62), so there should be no sweat in getting them from your publications section.

When you go looking for your listing you'll find it listed under several different names. Some publications call it Basic Issue Items List, others call it Vehicular Tools and Equipment; then again some people call it OVM and others call it OEM. Regardless of the name, they all mean the same.

If there's any question as to which vehicle is in what series, dig out your copy of TM 9-2300-223-20P (Mar 62) titled, Consolidated Authorized Organizational Stockage List of Repair Parts for Automotive Materiel; pages 4 through 8 give the complete picture.

VEHICLE SERIES	PUBLICATION
G-740 1/4-ton	Ord 7 SNL G-740 (Jun 56)
G-758 1/4-ton	Change 4 (11 Dec 59) to TM 9-8014
G-741 3/4-ton	Change 5 (21 Jun 60) to TM 9-8030
G-742 2 1/2-ton	Change 5 (11 Dec 59) to TM 9-8022
G-749 2 1/2-ton	Ord 7 SNL G-749 (Apr 57)
G-744 5-ton (including the M543 and M62 wreckers)	Change 7 (Jul 61) to TM 9-8028
G-792 10-ton	TM 9-2320-206-12 (Feb 60)





Dear Half-Mast,

What's the story on tent poles? Should we or shouldn't we paint 'em?

SFC J. A. C.

Dear Sergeant J. A. C.,

There's nothing in the pubs that says you should paint 'em, Sarge, but there're a couple good reasons why it's better not to.

For one thing, paint would only cover up any defects that could be serious to the tent and its tenants — like cracks, rotting, etc. For another, I think it's mighty significant that neither MIL-P-549B (20 Nov 58) — on poles, tent, upright and ridge—nor FM 20-15 (Jan 56)—all about tents and tent pitching —say anything about painting 'em.

So less'n your CO says otherwise, let well enough alone.

Half-Mast

Dear Half-Mast,

I understand there are two different tailpipe extensions for the 5-ton 6x6 G744-series trucks. Can you give me the FSNs and tell me which tailpipe extension goes with which truck?

Capt. B. G.

Dear Captain B. G.,

Extension tailpipe (8331956) FSN 2990-040-2333 is the right one for all the G744-series trucks except the M52 truck-tractor.

For the M52 you need pipe, exhaust, extension, tailpipe (7059574) FSN 2990-649-9484 which Change 4 (Feb 62) added to TM 9-2320-211-20P (Jan 59).

With the FSN 2990-649-9484 tailpipe extension you also need clamp FSN 2990-447-4726 and hanger FSN 2990-741-1059. They're listed on page 29 of the -20P.

No matter which tailpipe extension you use, the end of it has got to point downward. If it points up, it was put on wrong and could be dangerous—carbon monoxide.

Half-Mast

M113 DIPSTICK DOPE

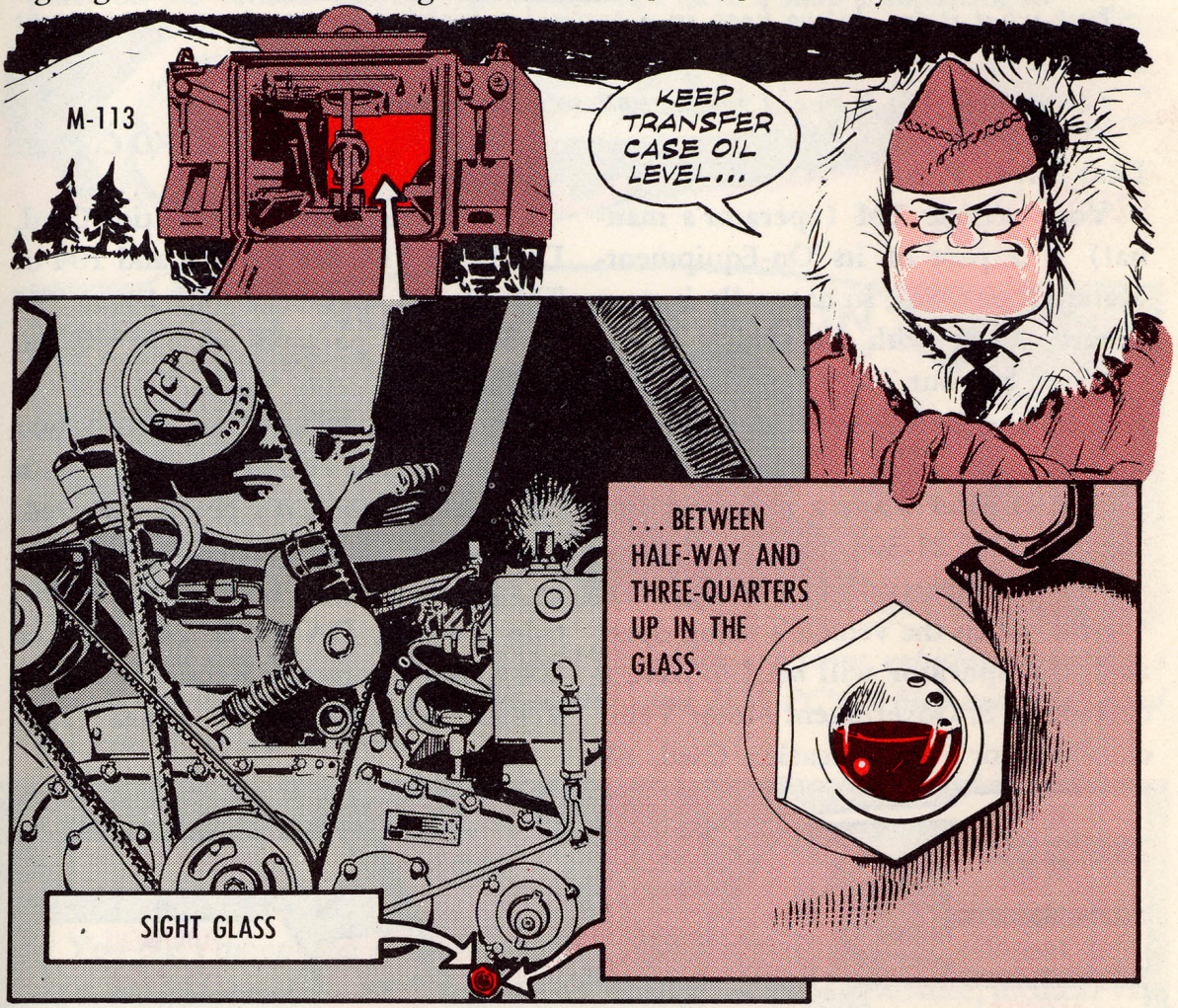
Dear Half-Mast,

On the early model M113 PC's a sight glass shows the oil level in the transfer case. Did an MWO ever come out to change this sight glass to a dipstick like you have on the late production models?

MSgt H. B.

Dear Seargeant H. B.,

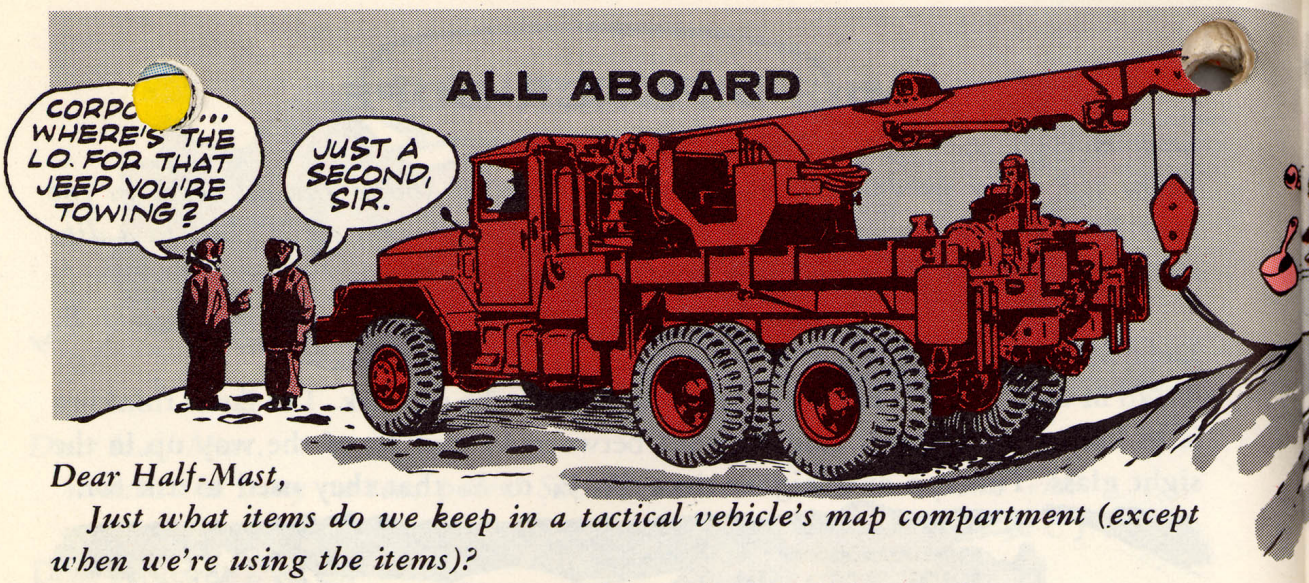
No MWO, Sarge. The sight glass is as good as the dipstick. The latest thinking is to keep your transfer case oil level between ½ and ¾ of the way up in the sight glass. This is a mite higher than the ¼ to ¾ that they used to ask for.



The only thing that might throw you with the sight glass setup is putting in a new transfer case. A replacement transfer case, FSN 2520-711-8377 (ORD 10866190), won't have either a sight glass or a dipstick.

If you don't have a dipstick to use with it, you'll have to order a dipstick kit, FSN 2520-898-6770 (ORD 5702887). You'll only have this problem on M113's numbered F-1314 and below. The vehicles above that number are dipstick equipped.

Half-Mast



Dear Half-Mast,

Just what items do we keep in a tactical vehicle's map compartment (except when we're using the items)?

The vehicle TM is one, I know, and so's the LO. What else?

CWO C. P. A.

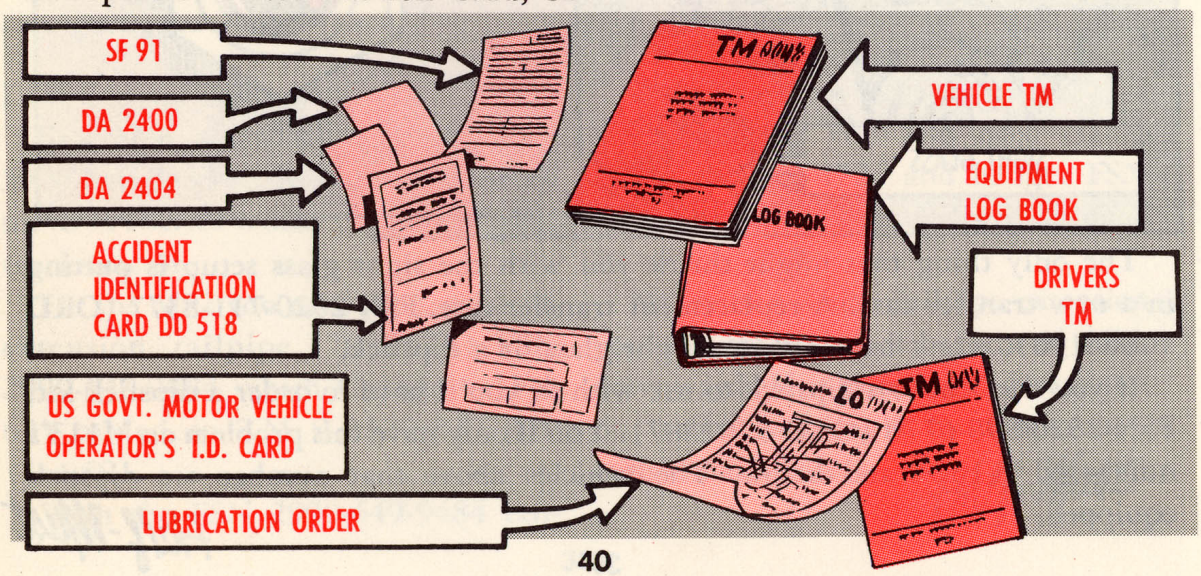
Dear Mr. C. P. A.,

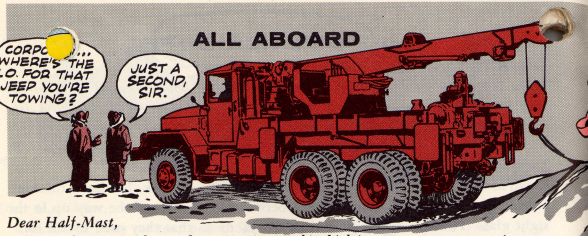
Your vehicle TM (operator's manual) is a part of its On-Equipment-Materiel, or OEM, so naturally it stays aboard, along with the vehicle LO as required by your TM. O'course the LO will be the latest listed in DA PAM 310-4.

You'll also want a driver's TM aboard—TM 21-305 for wheeled or TM 21-306 for tracked vehicles.

Also, when the vehicle's being operated, the **operator** will need to have a current U. S. Government Motor Vehicle Operator's Identification Card, SF 46, and an Accident Identification Card, DD Form 518. See paras 4 and 104 of TM 21-305, paras 11 and 13 of TM 21-306, and para 18 of TM 38-750 (1 May 62).

Check TM 38-750 and you'll find these items that also stay in, on or with the **vehicle** when it's being operated. They're the Equipment Log Book and/or an authenticated Equipment Utilization Record, DA Form 2400 (para 20b), and Operator's Report of Motor Vehicle Accident, SF 91 (para 19a).





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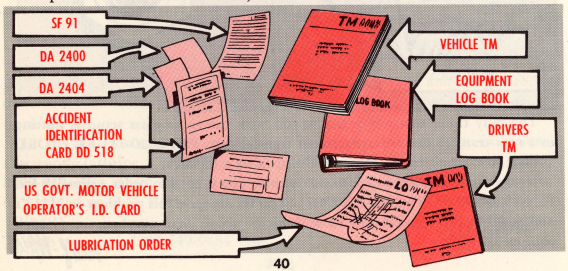
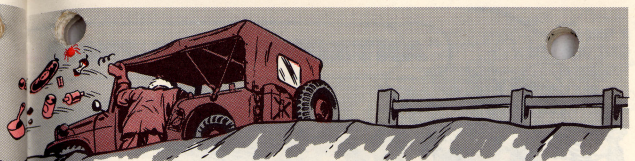
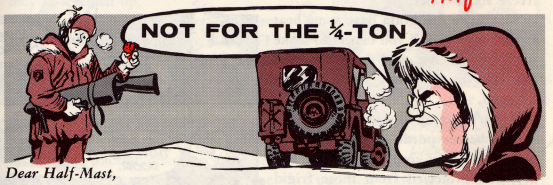




Beyond these, it'll depend on local SOP or the word in the vehicle's own publications. Some LO's are decals attached to equipment. And it's possible SOP in your command might call for any of these items to be kept some other place on the vehicle—if your vehicle doesn't have a map compartment.



Dear Half-Mast,

Our unit has ¼-ton trucks (M38A1's), which are scout vehicles mounting a .30-cal machine gun on a pedestal mount, and M59 PC's, which are rifle squad and mortar squad carriers.

How, where, and by what authority can I mount universal rifle brackets on these vehicles to prevent undue damage to our drivers' weapons?

Lt. W. R. E.

Dear Lieutenant W. R. E.,

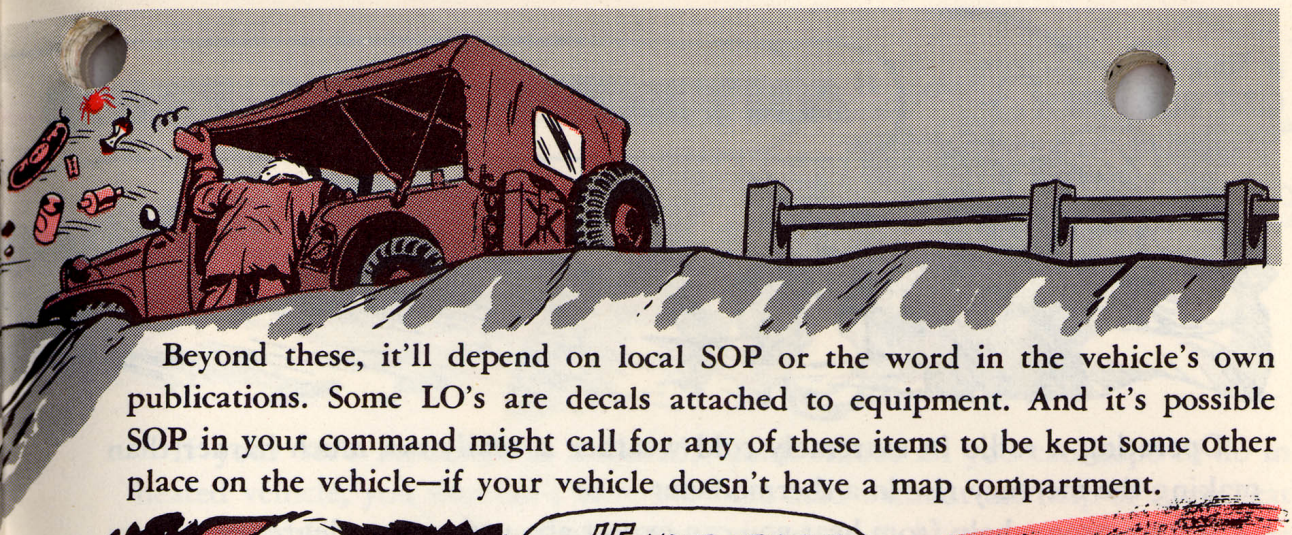
You can't mount the rifle bracket on your M38A1 or M59.

TB 9-2300-209-20 (11 Jun 59) says that due to lack of space, the cover and rifle bracket assembly can't be installed on the ¼-ton 4x4 trucks, SNL G740-series or the ¼-ton 4x4 trucks, SNL G758-series.

The TB also says that the cover and rifle bracket assembly will not be installed on any ambulance, medical van, or any other vehicle displaying the "Red Cross" emblem.

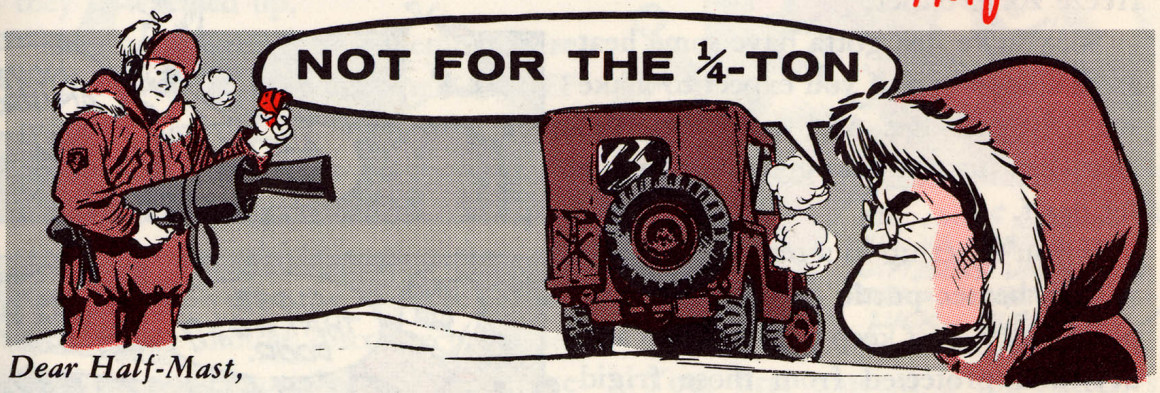
The M59 PC's won't get the rifle bracket assembly because the M59's have been classified as Standard B.

Half-Mast



Beyond these, it'll depend on local SOP or the word in the vehicle's own publications. Some LO's are decals attached to equipment. And it's possible SOP in your command might call for any of these items to be kept some other place on the vehicle—if your vehicle doesn't have a map compartment.

Half-Mast



Dear Half-Mast,

Our unit has ¼-ton trucks (M38A1's), which are scout vehicles mounting a .30-cal machine gun on a pedestal mount, and M59 PC's, which are rifle squad and mortar squad carriers.

How, where, and by what authority can I mount universal rifle brackets on these vehicles to prevent undue damage to our drivers' weapons?

Lt. W. R. E.

Dear Lieutenant W. R. E.,

You can't mount the rifle bracket on your M38A1 or M59.

TB 9-2300-209-20 (11 Jun 59) says that due to lack of space, the cover and rifle bracket assembly can't be installed on the ¼-ton 4x4 trucks, SNL G740-series or the ¼-ton 4x4 trucks, SNL G758-series.

The TB also says that the cover and rifle bracket assembly **will not** be installed on any ambulance, medical van, or any other vehicle displaying the "Red Cross" emblem.

The M59 PC's won't get the rifle bracket assembly because the M59's have been classified as Standard B.

Half-Mast

Operating a radio in extremely cold weather is really not much harder than making the mercury rise in a thermometer.

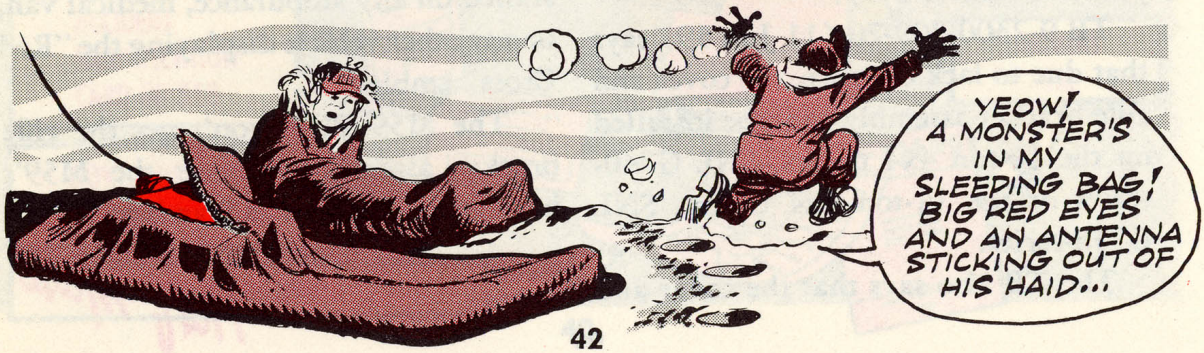
Without some help from heat you can expect about the same degree of success in both cases.

At −30°F., for example, the electronic genie inside your set is going to need a little coaxing before it goes sallying forth into the ether. Even Aladdin had to rub his lamp to warm it up before he got any results. And he wasn't in any deep freeze zone, either.

So, you've just gotta have some heat from somewhere if you expect to make with the message. And this is external heat—not just the heat generated by the set itself.

If you're set up in a tent or shelter—with a heater puttin' out—you're just plain lucky. Just keep the set warm and dry—and protected from those frigid blasts of cold air you get when you open a tent or shelter door.

The tinkle of warm tubes shattering from a blast of cold air is one of those rare, fascinating sounds that can leave you speechless. So rig a tarp or blanket or some other screen to shield the set from sudden changes in temperature.



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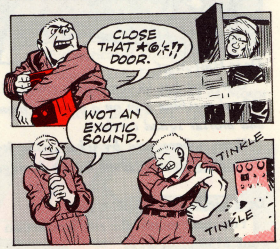

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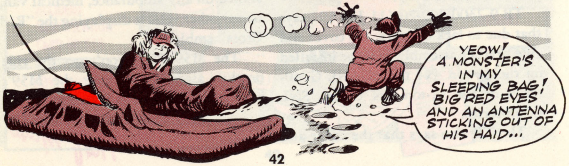


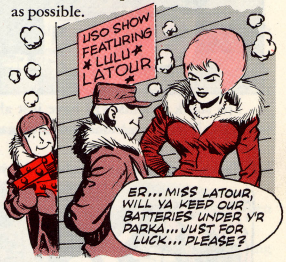
If your set's mounted in a closed, heated vehicle, you shouldn't have too much trouble keeping it warmed up to a good operating temperature.

Again, you'll have to protect the tubes from any blasts of hot air when they're cold, and from cold air when they're warmed up.

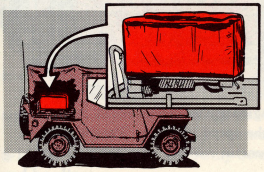
But a big thing to remember here is that you can't trust the ON-OFF switches for your set. They may freeze up on you.

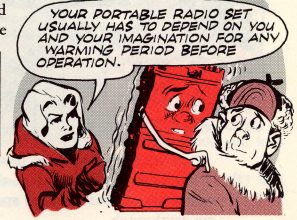
So just turning the set off when you crank up the vehicle engine may not prevent a power surge to those chilled tubes. You should disconnect the set from the power supply until the engine is running. Initial power surge in a stone-cold set can really drop you out of the net.

That's why you want to make sure your set and its batteries are all warmed up before you take 'em out into the cold. About all you can hope to do in the field without the help of some heat source is to keep as much of the heat as possible.



Your first concern is the batteries, since they're useless when they're real cold. Whenever possible, keep 'em within your own clothing. And carry warm spares.





PS MORE

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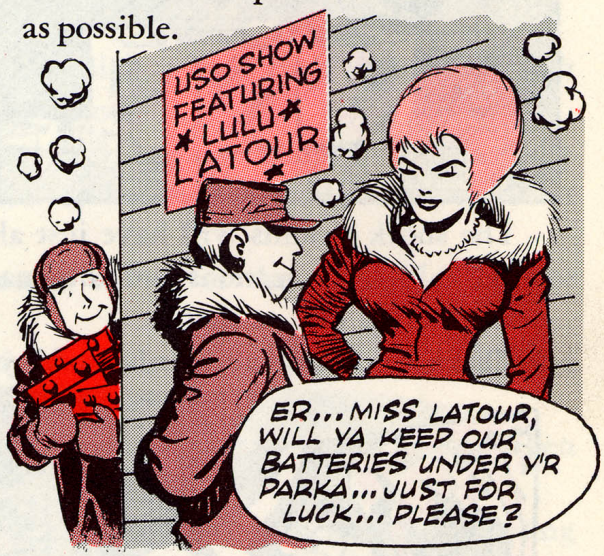

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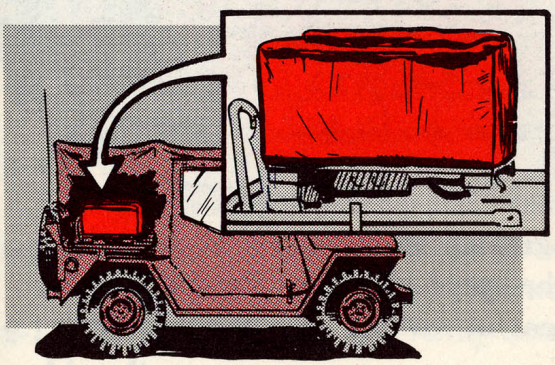
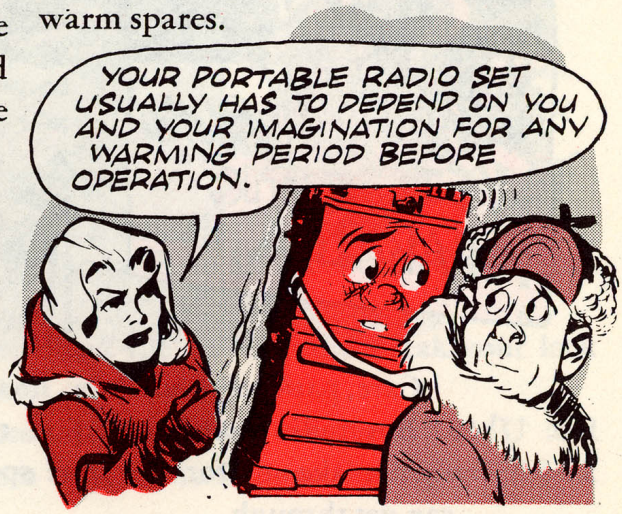
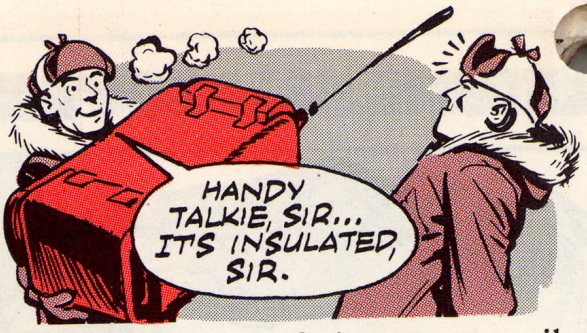


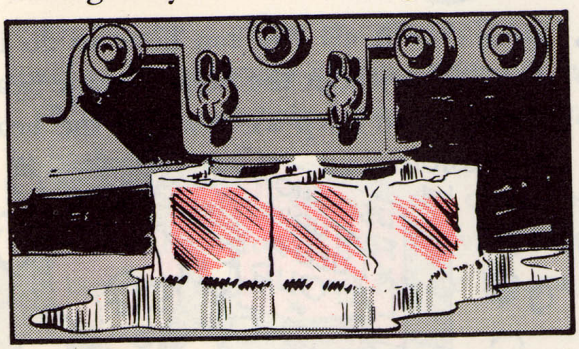


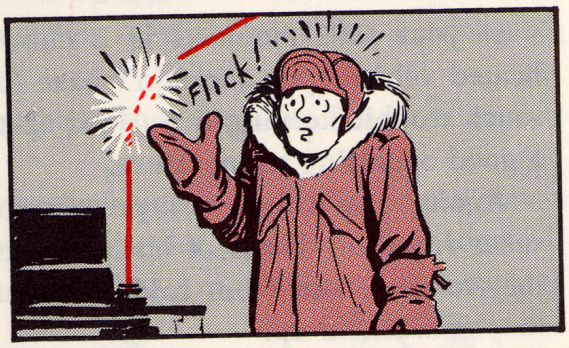
P.S. MORE

Insulated bags, boxes or wrapping will go a long way in keeping that frigid and frustrating finger of frost from cold-soaking your set. Take special pains to keep the set protected from the wind, because it can chill the set many times faster than still air.



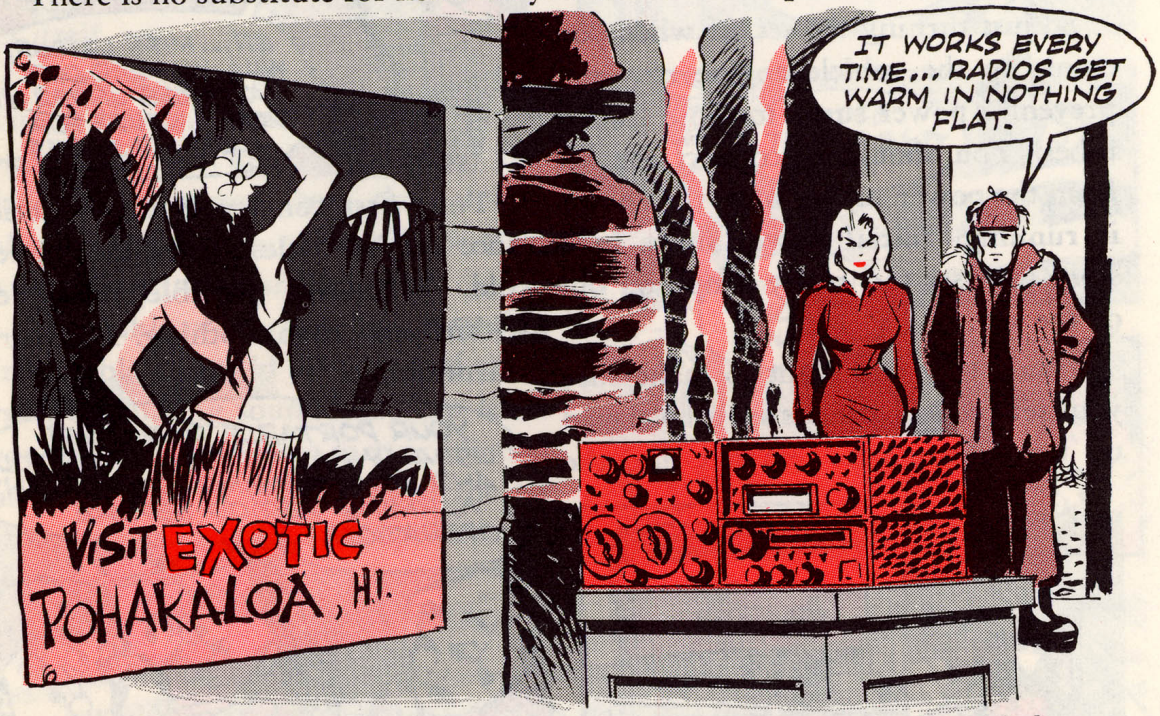
No matter what set you have, it's going to be a hundred times more easily damaged by shock and rough treatment in real cold weather.





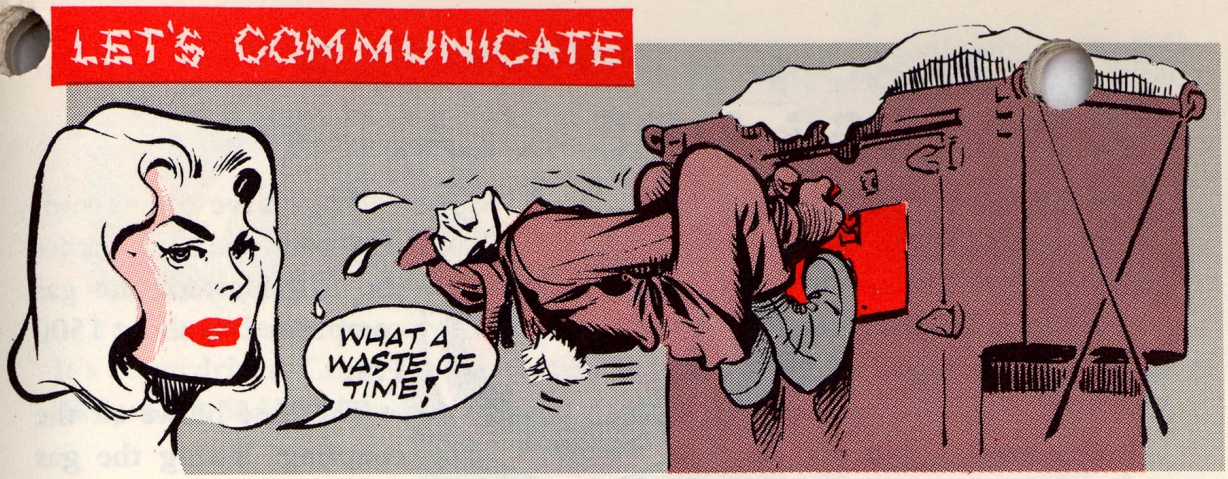
The shock mounts will have just about as much "give" as an ice cube. The cords, cables, connections and antennas will be about as flexible as a potato chip —and a crisp one at that.

There is no substitute for heat. All you can do is compensate for the lack of it.



Care, patience, knowhow, imagination and effort are all needed.

But radio waves travel at the speed of light. They'll more than make up for the time spent in making sure the message can get through.



BREAKING THE ICE

Sometimes there's more to opening and closing a door than lifting the latch and walkin' in . . . like Little Red Riding Hood.

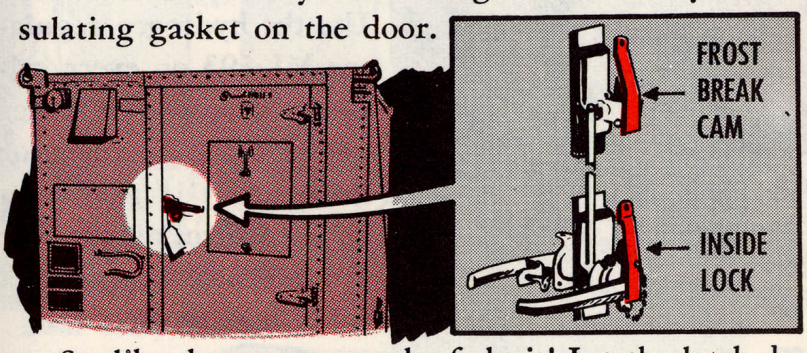
F'rinstance, when frost or ice or maybe freezing rain clamps everything in a frozen grip. That can mean more pushin' and pullin' and all kinds of sweat comes time to loosen up a hatch or door.

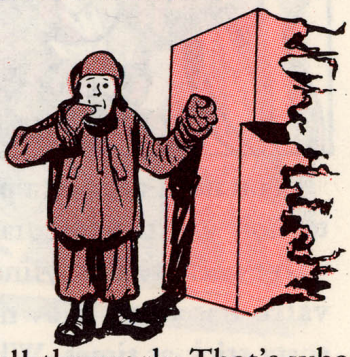
No such sweat, though, if you're housed in one of the newer S-141/U or S-144/U comm shelters.

'Cause those huts handle the ice problem with a "frost break" door lock and handle that brings cam action to bear on the problem.

Come to think of it, the idea is to be sure **not** to ripple too much muscle when opening and closing the door.

That frost break cam latch was built to apply all the opening and closing pressure you'd need under any conditions . . . and anybody leaning or pushing on the door actually will damage the assembly and shorten the life of the insulating gasket on the door.





So, like the man says, why fight it! Let the latch do all the work. That's what it was built for.

Strong-arm tactics will do more than break the ice—it could break your lock and handle and really put things on ice.

Check your shelter, though, because earlier models of the S-141/U and S-144/U for DivComm and Army Comm systems don't have the improved lock and handle.

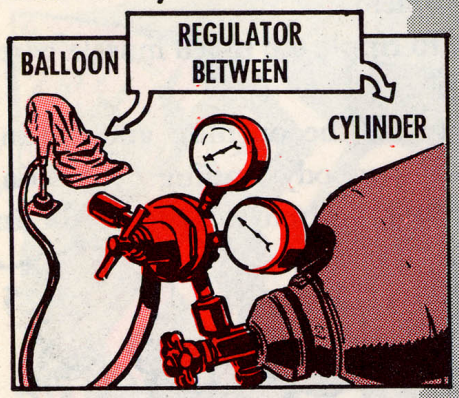
BLOW UP, BUT...

USE A REGULATOR

When it comes to inflating meteorological balloons, it's pretty hard to go wrong with TM 11-2405, with Changes 1 (14 Nov 57).

Pretty hard . . . but not impossible.

When you're using cylinders of compressed hydrogen or helium you want to make plumb certain you use a regulator between the cylinder and the balloon. The direct hose-to-tank hookup is mighty unsafe and uncertain—to say the least.

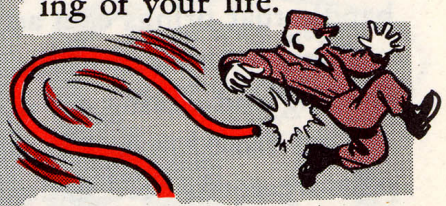


You need the extra protection of the regulator valve because the cylinder valve has been known to sorta stick at times. When it does, it's impossible to ease it open the way you're supposed to. So you start opening her up more . . . and more . . . and a little more . . . and swish!

The valve opens suddenly and the hose catches the full blast of the gas compressed to about 1500 PSI.

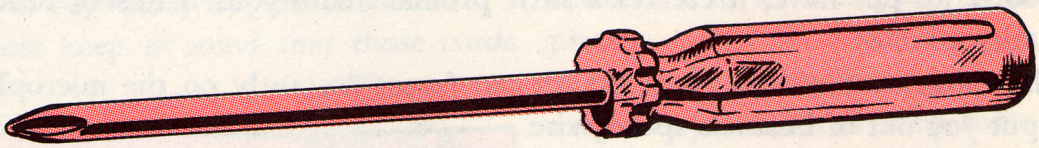
The hose blows off the coupling, letting the gas escape into the inflation area. Which is bad enough.

But before the hose blows, chances are it'll whip and snap like a . . . well, like a snapping whip. And you can get the hosing of your life.



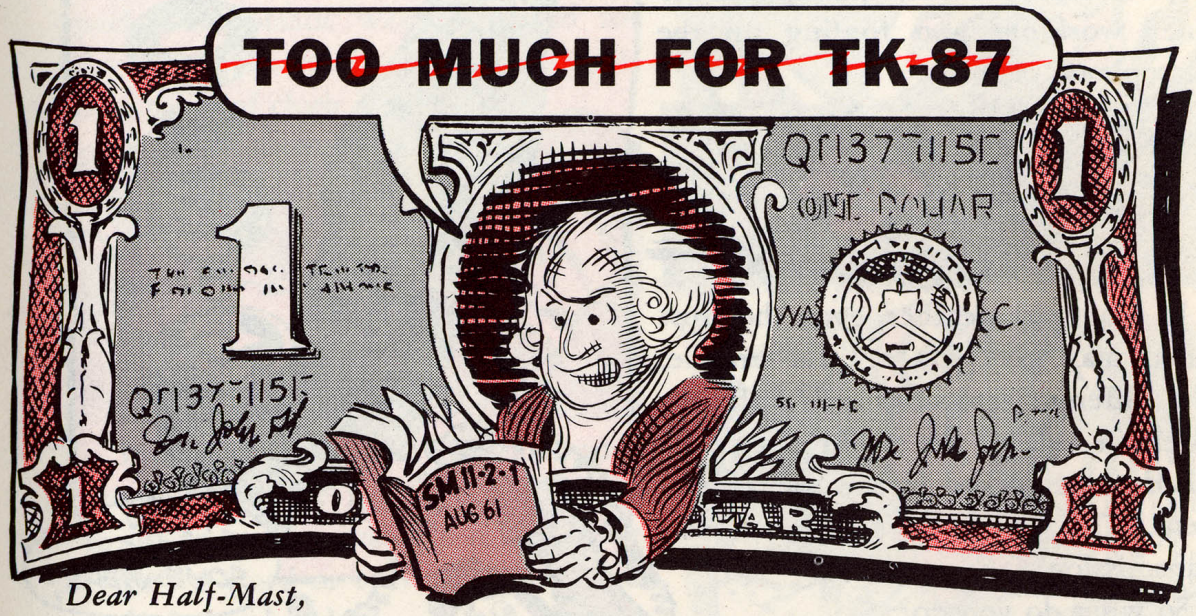
So always play it safe. Use the hydrogen regulator ML-193 on every cylinder hookup — whether you're using hydrogen or helium. It'll give you better control all the way around—and save you a lot of hose woes.

You've got another screwdriver coming for your new TK-88 () /U tool kit. It's Screwdriver, Cross Tip: **Phillips type tip; plastic handle; 8-in length; tip size #1. Change 1 (18 Apr 62) to SB 11-526 gives you the authority.**



The screwdriver (FSN 5120-537-8694) called for by the change to the SB was in the old TE-113 set. If you haven't converted your TE-113 yet, you can just add the FSN 5120-537-8694 screwdriver to your TK-88 instead of requisitioning an extra one.

But if you have to requisition the screwdriver, use FSN 5120-529-3101 (QM). The screwdriver under this number is replacing the screwdriver under FSN 5120-537-8694.



Dear Half-Mast,

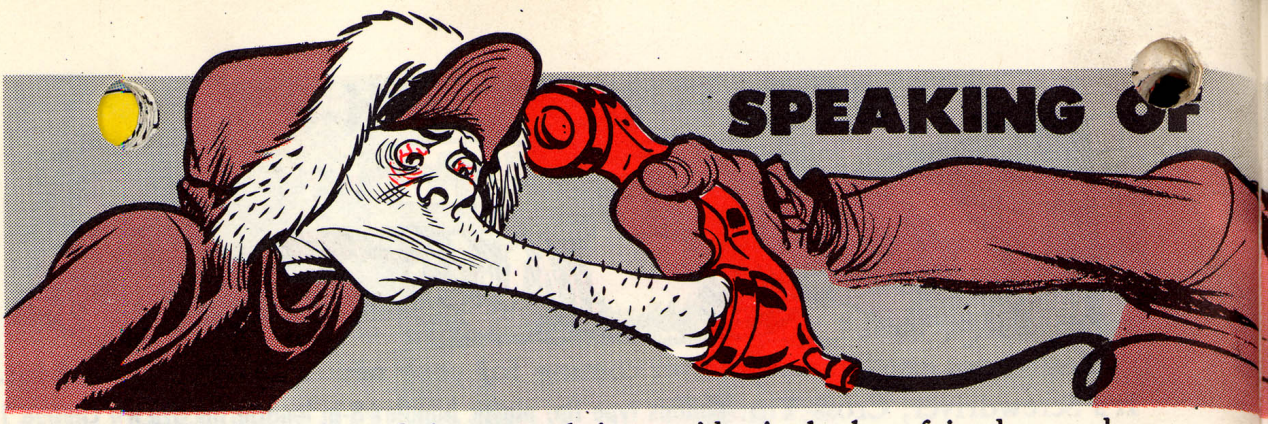
The price listed in SM 11-2-1 (Aug 61) for the new TK-87 tool kit is $150. This kit is just about half the size of the TE-113, which only cost $128. Did somebody slip a digit or something? *WO J. E. B.*

Dear Mr. J. E. B.,

Something slipped, Sir.

The correct price for the TK-87 is $54.

Half-Mast

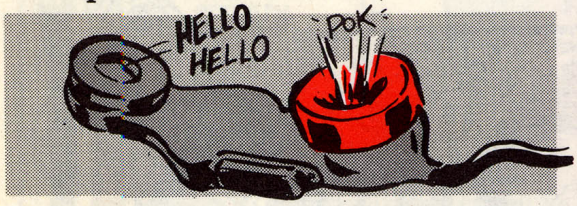


While your own body and the warmth it provides is the best friend your dry cell batteries can have, it creates a little problem with your handsets, headsets and microphones.

The condensation from your breath can freeze instantly on the microphone and put you out of business speechwise.

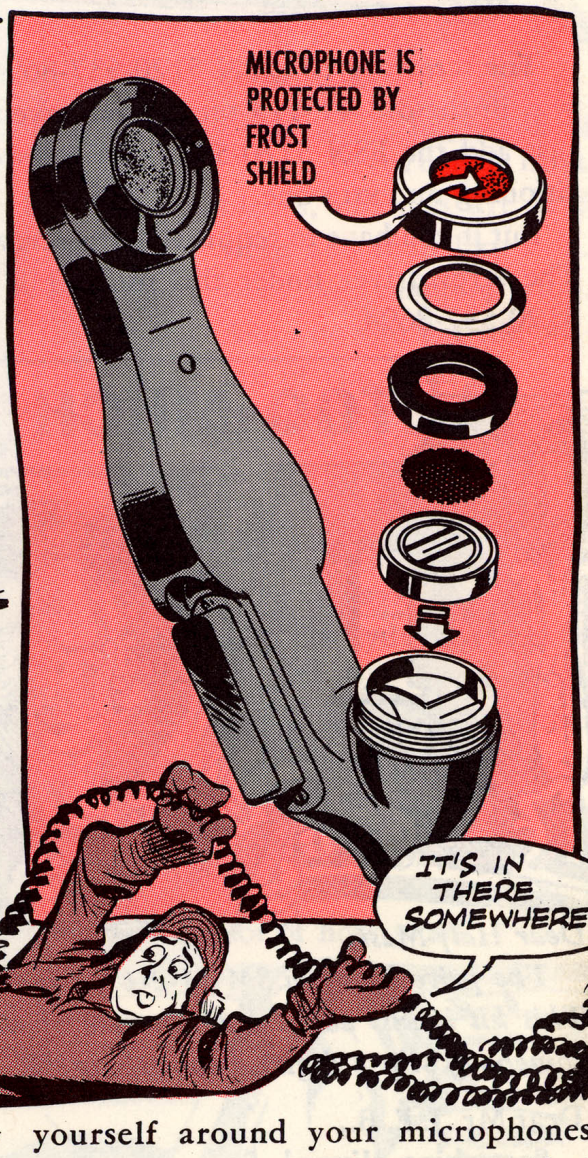
That is, unless the microphone is protected by the frost shield issued with the equipment.

The shield will frost up too, but it'll keep the moisture from getting into the inner workings and fouling up the microphone element.



In real cold weather, even the frost shield may give you a little trouble. The different temperatures of the air on either side of the shield causes the shield to be sucked in toward the element. This can sorta snuff out your transmission.

So what do you do?



Well, there's only one sure-fire way to beat the problem. And that's the old mother hen technique of wrapping yourself around your microphones every chance you get. This'll get rid of any frost that forms and keep the ele-

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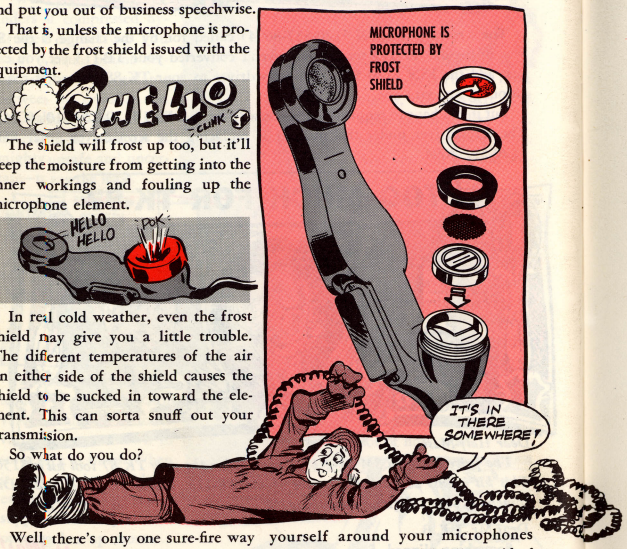

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Just keep in mind that those cords

and cables are goin' to be mighty stiff and brittle so handle 'em real carefully.

If you lose a frost shield and you don't have a spare, improvise real quick. You can use cellophane from cigarette packs, the plastic wrapping used for dry cell batteries (if it's thin enough), or a piece of cloth if necessary.

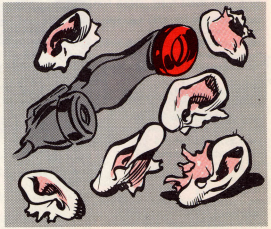
It may be easier to tie a shield around the mike—bootie fashion—than to try to cut one to size and slip it into place.

Just a word or two about the other end of your handset.

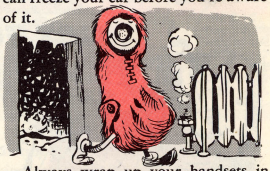
Any water or moisture that gets into the receiver can keep you from getting the message, so keep it protected.

If the receiver does freeze up, you can take off the earcap and get rid of the ice. This is not the easiest thing in the world to do with mittens on, though, so it's better not to let it happen in the first place.

If your handset hasn't got a rubber earpiece, you'd better keep some cloth

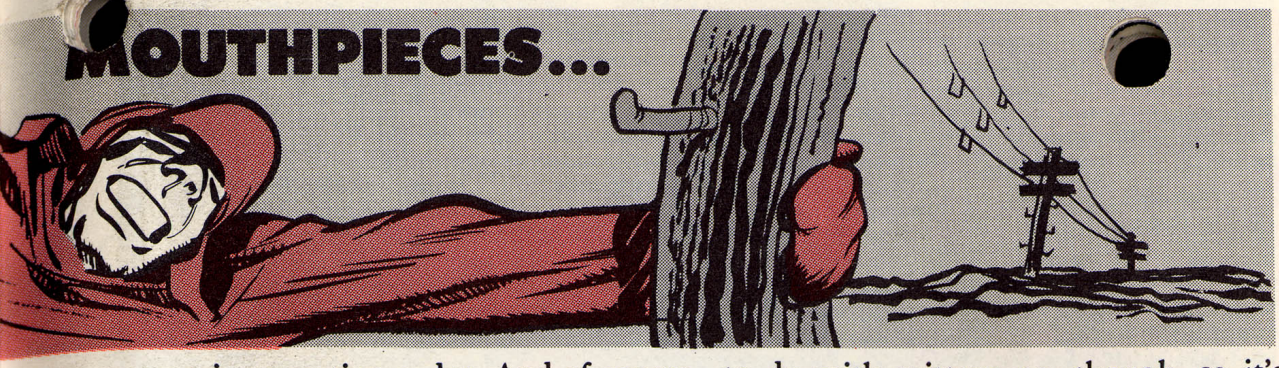


like a wool-knit cap—between your ear and the earpiece. The plastic earpiece can freeze your ear before you're aware of it.



Always wrap up your handsets in some dry, woolen material before you take 'em into a heated area. The material will absorb the moisture when the cold equipment starts to "sweat" in the warm air.

MOUTHPIECES...



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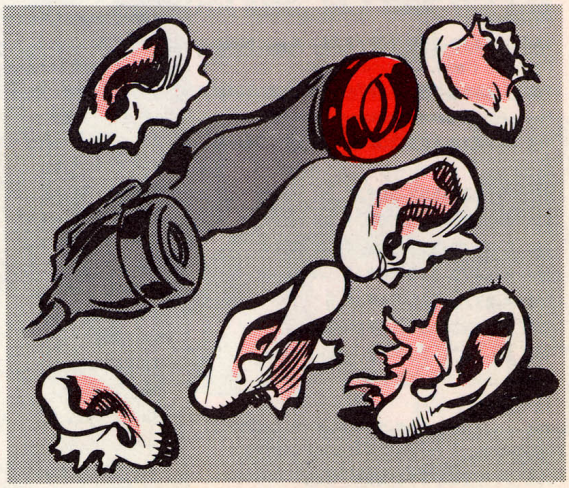

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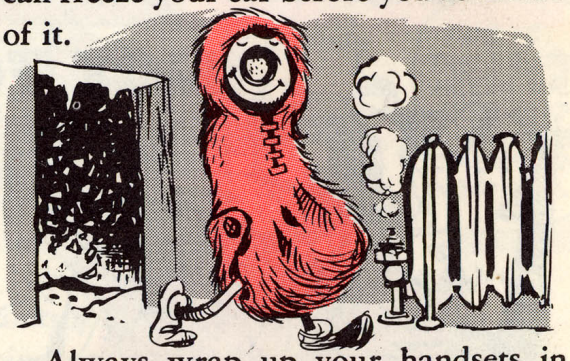

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A selected list of recent publications of interest to [illegible] Maintenance Personnel. This is a list complied from recent Adjutant General's Distribution Center Bulletins. For complete details see DA Pam 310-4 with latest changes.

TECHNICAL MANUALS

TM 1-1L-26-6 May.

TM 1-1U-1A-6 Jul.

TM 5-1450-200-20P Aug Nike-Hercules.

TM 5-3805-210-10 Aug Grader, Road, Huber-Warco Model 4D.

TM 5-3825-202-20 Aug Distributor, Water, MacLeod Model W-1M5.

TM 5-4310-243-25P Aug Nike-Ajax, -Hercules, Air Compressors.

TM 9-1055-212-20P Aug Little John.

TM 9-1100-212-12 Jul Little John.

TM 9-1410-250-20P/1/1, -20P/1/2, Jul Nike-Hercules.

TM 9-1430-250-20P/4/1 Aug Nike-Hercules.

TM 9-1430-250-20P/7/1 Aug Nike-Hercules (Imp), Ground Contr.

TM 9-1430-250-20P/11/2 Jul Nike-Hercules Ground Contr.

TM 9-1430-501-20P/1 Aug Hawk, Contr.

TM 9-1430-502-20P/1 Jul Hawk.

TM 9-1430-504-20P/1 Jul Hawk.

TM 9-1430-505-20P/2 Jul Hawk.

TM 9-1430-510-20P/1 Jul Hawk.

TM 9-2330-202-14P Aug.

TM 9-2330-231-14P Aug.

TM 10-3930-229-10 Aug Truck Lift, Fork, Gas, 15,000-pound, Yardlift MHE 151.

TM 10-8340-207-25 Aug Frame-Type Maintenance Tent.

TM 11-5805-246-20P Aug Terminal, Telegraph, TH-5/TG.

TM 11-5805-317-20P Jul Terminal Telephone, AN/TCC-7.

TM 11-5805-330-20P Jul Repeater Monitor Group, Telegraph AN/FGA-6.

TM 11-5815-281-20P Aug Distributor-Transmitter Set, Teletypewriter AN/GGC-9 Power Supply PP-1801/16.

TM 11-5830-339-20P Aug Intercommunication-Monitor Station LS-230/GSQ.

TM 11-5895-257-20P Jul Coder-Decoder Group OA-1593/MSQ-18, OA-2926/FSQ-34, OA-2789/TSQ-38.

TM 11-5895-336-12 Sep (Confidential) (F/W).

TM 11-5985-233-25P Aug Support, Antenna AB-377/TLR.

TM 11-6130-211-20P Aug Power Supplies PP-1097A/G & PP-1097B/G.

TM 11-6625-247-20P Aug (Gyro Comp Test Set TS-1086/U).

TM 11-6625-276-20P Jul Test Oscillator Set AN/PRM-10.

TM 11-6625-285-20P Aug Oscilliscopes OS-46/U, OS-46A/U, OS-500/U, & OS-5001A, B/U.

TM 11-6625-289-20P Aug Organizational Maint Repair Parts & Special Tool Lists.

TM 11-6625-314-15 Jun Operator Organizational, Field, & Depot Maint Manual Multimeter, AN/USM-33.

TM 11-6625-429-24 Aug Organizational & Field Maint Manual, Test Set, Circulator Head Setter TS1687/MSM-34.

TM 11-6625-526-12 Aug Test Set, Therman Sensitivity AN/AAM-11.

TM 11-6660-200-20P Aug Wind Measuring Set AN/GMQ-11.

TM 11-6665-200-20P Jul Radiacmeters, IM-108/PD and IM-108A/PD.

TM 11-6720-218-20P Jul Camera Equipment PH104.

TM 11-6720-218-35P Jul Camera Equipment.

TM 11-6730-210-10 Aug Proj Set, Motion Pict Sound AS-7A.

TM 11-6730-212-12P Jul Projects PH-405 & PH-405A.

TM 55-1510-204-20 May (AO-1).

TM 55-1510-206-10CL Jul (AC-1).

TM 55-2210-213-20P Aug Locomotive, Diesel Elec 56½" Gage, 100 Ton, 0-4-4-0 wheel, Alco Eng Mod 539, 660 HP, Amer Loco Co.

TM 55-2220-210-12 Aug Rail Car, Guard 56½" Gage, 8 Whl Domestic.

MODIFICATION WORK ORDERS

MWO 9-1430-502-20/29 Aug Hawk, Ground Contr.

MWO 9-2300-224-20/5 Aug Carrier Personnel, M113; Enl Fan Housing Gr Box Oil Ser Op.

MWO 9-2320-206-12/1 Aug Truck Tractor: M123, Truck Cargo, M125, Install Instruction Plate.

MWO 9-2350-215-20/10 Aug Tank, M60.

MWO 55-1510-201-34/1 Sep (L-23).

MWO 55-1510-204-34/12 Sep (AO-1).

MWO 55-1510-204-34/23 Sep (AO-1).

MWO 55-1510-204-34/38 Sep (AO-1).

MWO 55-1510-206-34/16 Aug (AC-1).

MWO 55-1510-206-34/22 Aug (AC-1).

MWO 55-1520-201-34/2 Sep (H-19).

MWO 55-1520-207-34/54 Sep (HU-1A).

MWO 55-1520-208-34/21 Sep (HU-1B).

LUBRICATION ORDERS

LO 5-2805-206-14 Jul Engine, Gasoline, Military Standard.

LO 5-4310-242-15 Aug Compressor Recipro: Air 175PSI; Hand Truck Mounted: Gas Driven.

LO 9-1005-231-10 Jul M85 Cal. 50 Machine Gun.

LO 9-2350-217-10 Jul Howitzer, S-P 105mm, T195E1 & 155 mm, T196E1.

MISCELLANEOUS

ORD 7 SNL Y-16 Jul Nike-Ajax.

TB Eng 317 Jun Air Movement Instructions.

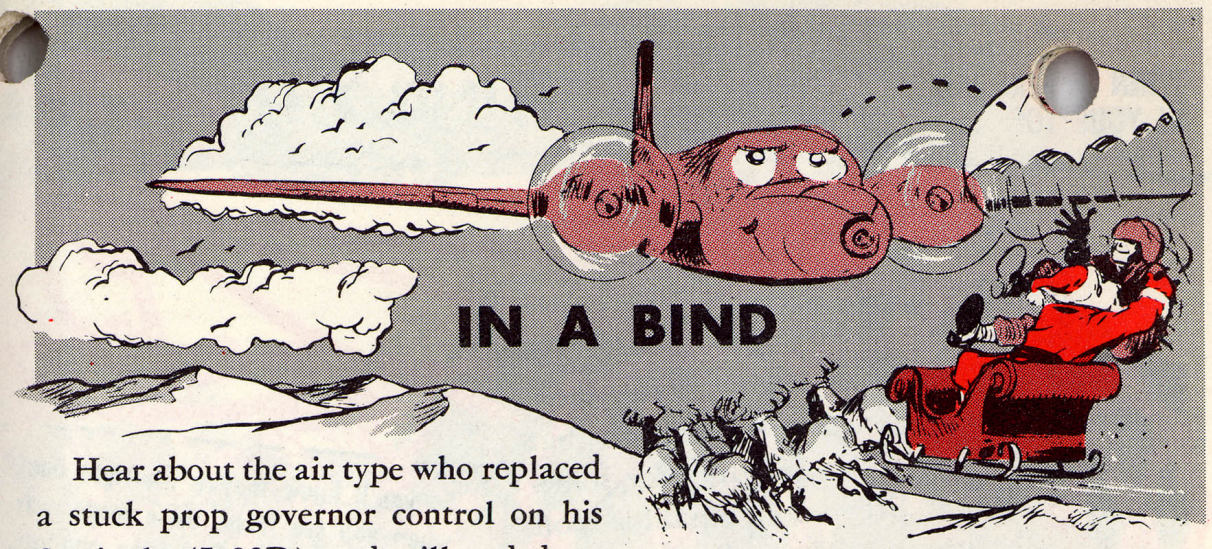
TB 9-2330-205-24/1 Aug Trailer: Generator, M200A1. Corr of Elec Wiring.

TB 9-2300-229-10/1 Aug Truck Fuel, M49C, M217C, Fuel Filter Elem Kit.

TB AVN 23-68 Aug (UR).

NOT FOR YOU

You been having trouble putting the ram pressure tube closure assembly on your Nike-Hercules missile? Could be the ones you have were bought under contract 01-009-002-P-1217. One of the troubles with these is the misalinement of the slots. Don't fight 'em. Ask supply for closure assemblies that come under a different contract number.

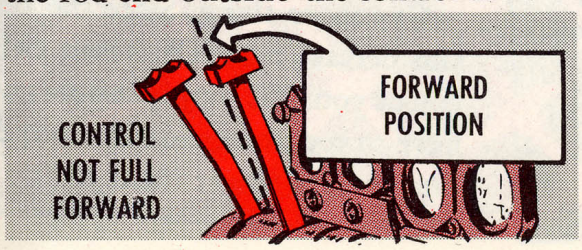


Hear about the air type who replaced a stuck prop governor control on his Seminole (L-23D) and still ended up in a bind?

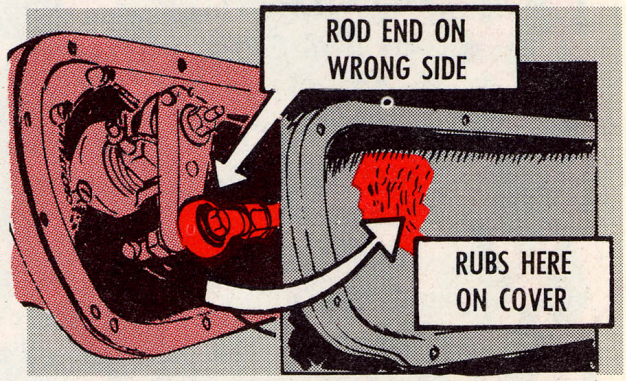
Sure he followed the cable removal and replacement bit in paragraphs 3-105 thru 3-108, page 3-15 of TM 55-1510-201-20 (Mar 62) to the letter. (With no picture to follow.)

He even got full travel on the prop governor control **before** he put the governor control's iceguard cover back on. So he naturally figured it wasn't necessary to check for full control travel **after** he put the cover on . . . another 48-hour pass shot!

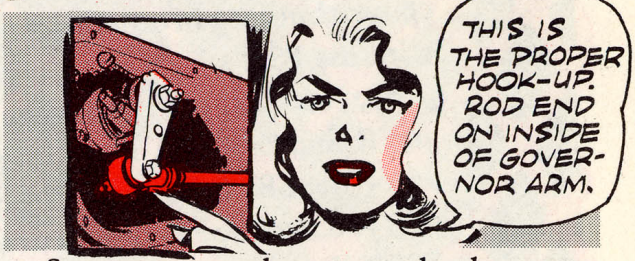
'Course, any on-the-ball mech knows you also check travel with the cover on. And if you can't get the control all the way forward without using brute force the last inch or so, your cable rod end at the governor is hooked up wrong . . . even though Figs. 3-4, page 3-25 of TM 55-1510-201-34 (Jan 62) shows the rod end **outside** the control arm.



If you hook it up to the outside of the governor control arm, like this, the rod end will rub against the inside of the fiber glass cover and bind your cable.

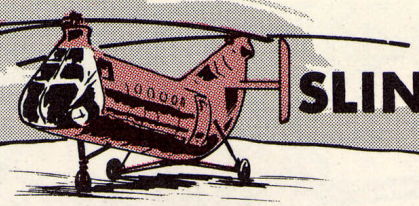


The right hook-up wants to go like so, with the rod end on the inside of the governor control arm.



So-o-o-o . . . when you check your control for free travel and you feel any binding in the forward position, you want to check your cable at the governor. After all, when an aviator shoves the prop control forward on take off, he doesn't want to settle for anything less than a **full increase in RPM.**

WHEN YOU'RE NOT IN YOUR TOE...



SLING THE TA

Your TOE may get you these here now cargo type choppers, but it'll leave you dangling for something to lift your external loads off the ground. The only way you'll make any money slingin' a load is to use a TA hookup.

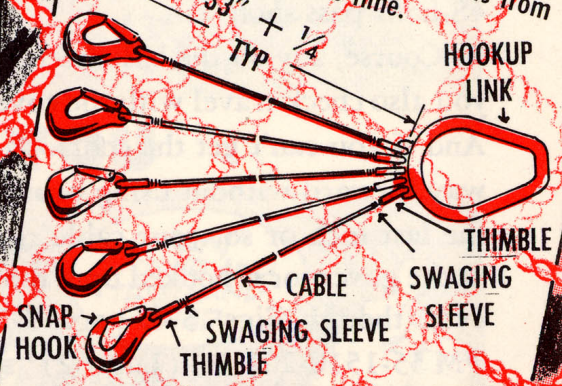
Right now the only—repeat only—authority to load up on slings and nets is in Changes 3 (13 Jun 60) to TA 20-2 (11 Oct 56), "Equipment for Training Purposes." Check under Section XIII of Part 3 for both items.

But since the line item numbers in Column 1 of the TA don't line up with the line item numbers in SB 55-31 (Dec 61), "Transportation Corps Adopted Items of Materiel," you're faced with nomenclature hunting in order to come up with the FSN's.

So, just to speed up the routine, you'll find both TA items on page 56 of the SB. FSN 3940-774-8507 gets you the Type A (most current) 5000-lb capacity octagonal net which the TA allows you (3 per cargo chopper) . . . and FSN 3940-606-9961 identifies the multiple leg sling authorized by the TA (1 per cargo chopper).

So you'll know they're the right ones when you see them, these cargo nets come in a flat configuration and are made out of wire rope for use either in restraining internal cargo or transporting sling loads.

The sling has a large central hookup link with five drop cables suspended from it, with a snap hook on each cable. The sling, naturally, is for carrying a cluster of up to five of these nets from the same bird at one time.



One more thing. Since the sling and net are not TOE items, either you or your TC supply support will have to toss some consumer credits into the pot to get them.

WHEN YOU'RE NOT IN YOUR TOE...

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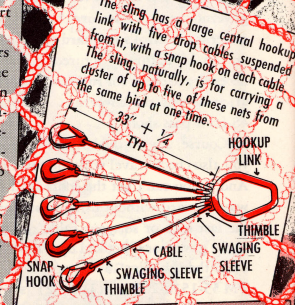

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AR TO THE RESCUE

And when you make out that supply request, why not ask to have both items put in your TOE—by following the instructions in para 15. 1a (1) (b) of Change 2 (1 Aug 60) to AR 725-5 (10 Sep 58), "Preparation, Processing and Documentation for Requisitioning, Shipping and Receiving."

You use the same procedure for picking up some other new slings which have been made available in supply channels, but don't show up in any TOE or TA which an air type outfit can use as authority. So happens TMC Supply Letter 65-61 (20 Dec 61) lists them as a 12x12-foot cargo sling and three different sizes of endless slings.

If you're interested, taxi over to the TC supply support hangar with an AR 725-5 type request for:

Sling, cargo net, 12x12 ft, nylon webbing mesh size 2 . . . FSN 3940-292-9850.

or . . . Sling, endless, nylon webbing:

The 12-foot cargo net is an "as required" item and has to be paid for under stock funding. These endless slings are classed as standard items which are expendable after a reasonable amount of use. You can also dig up Fid, hand-type, 12 inches long, to use in separating these slings after they've been put under load . . . just to keep from damaging the webbing unnecessarily. Ask QM supply for 2 each under FSN 5120-223-8921.

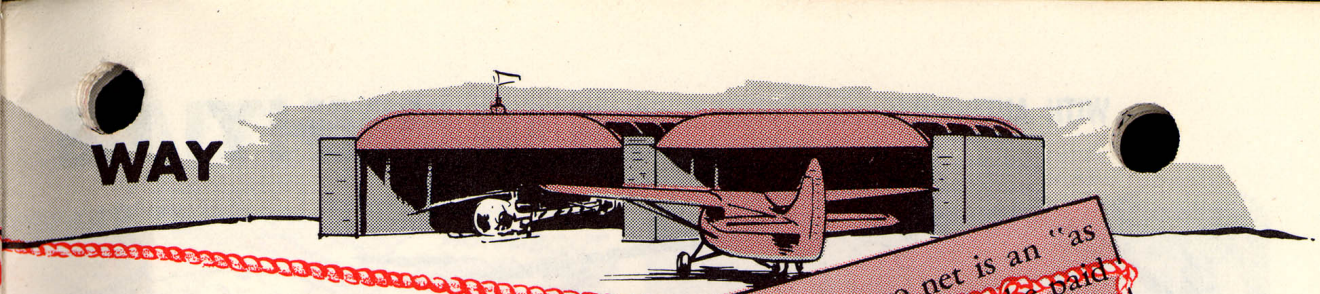
You'll find they're handy for looping together into all different sorts of combinations for slinging external loads with your choppers. Use the 10-in size sling for the final hookup point with the cargo hook.

Don't forget! If enough AR 725-5 supply requests come in to TC, you might see these items in one of your TA's or—even better—right in your own TOE. Ya gotta write 'em up before ya can hook 'em up!

TYPE I, 10-IN (5-PLY), 10,000-LB CAP . . . FSN 3940-675-5001

TYPE II, 4-FT (1-PLY), 2500-LB CAP . . . FSN 3940-675-5002

TYPE III, 8-FT (1-PLY), 2500-LB CAP . . . FSN 3940-675-5003



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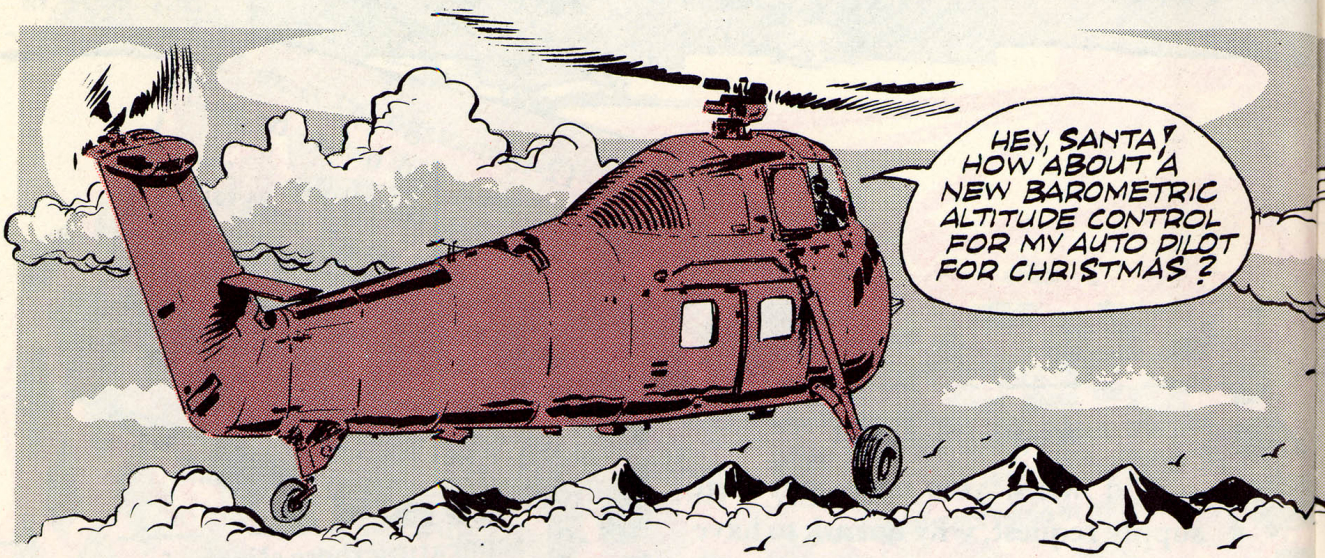
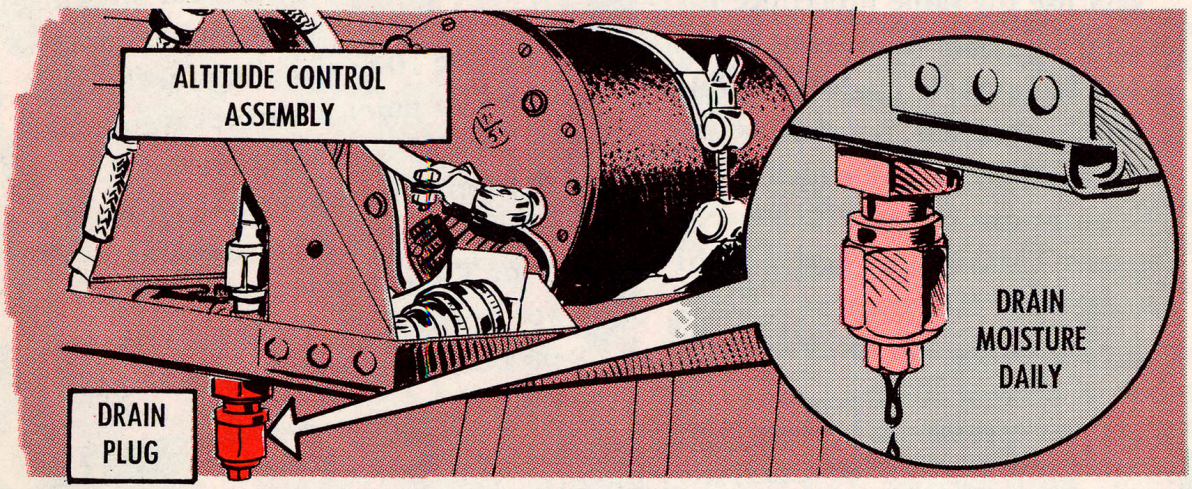
WITH AUTOPILOTS . . . WHY BE



One-handed Choctaw (H-34C) flying isn't necessarily better than two hands, when a little preventive maintenance on your AN/ASN-23 automatic pilot ASE will let you sing out with that old line about: "Look, Ma . . . no hands!"

Seems there've been a few complaints about the barometric altitude control part of these autopilots going out of whack, which means you've got to do all your scratching with your right hand.

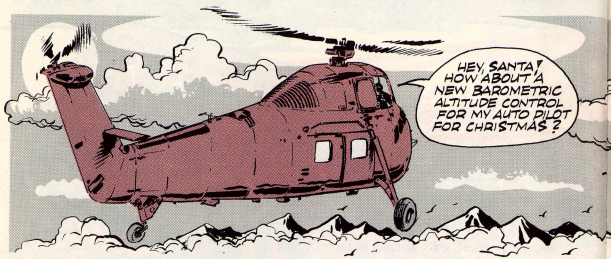
The complaining is due to condensation of moisture inside the control. Once

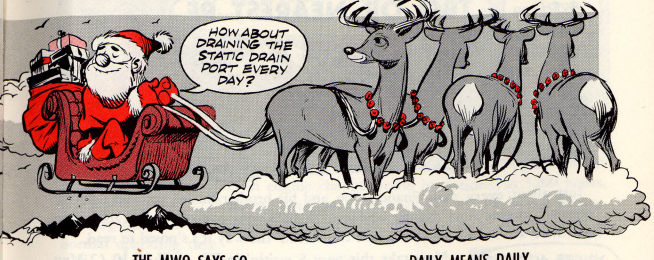


corrosion messes up the contacts in the altitude control assembly, your electronic friend has left you holding your own collective. There's not much you can do about an inoperative control caused by internal corrosion except to log the condition on your DA 2408-13 or DA 2391 (the old 781-2) and report the trouble to your Signal support unit.

But you can prevent that corrosion from forming by draining moisture daily from the static port drain located next to the control assembly, which sits at the rear of the top right hand shelf in the electronics compartment of your chopper.

WITH AUTOPILOTS . . . WHY BE HALF STABLE?





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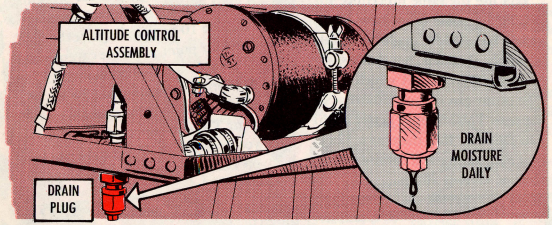

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THE MWO SAYS SO

You also check the dewpoint indicator on the altitude control's purifier chamber daily. That is, as soon as your 4th echelon shop installs the purifier chamber called for by MWO 55-1520-202-34/3 (7 Mar 62) on your Choctaw. The MWO authorizes installation kit FSN 6610-532-4321 for this job.

This purifier chamber is connected into your altitude control's pitot system to absorb moisture by means of a desiccant cartridge. The dewpoint indicator screwed into the chamber cap gives you a moisture content reading for the chamber . . . and lets you know when the cartridge inside has had the course (becomes saturated).

So as soon as the chemically treated portion of the indicator turns pink, replace both the cartridge and indicator immediately by asking for FSN 4440-476-1460 (Trans).

The dewpoint indicator is sensitive to unnecessary handling. So pay attention to the **NOTE** at the bottom of page 3 of the MWO.

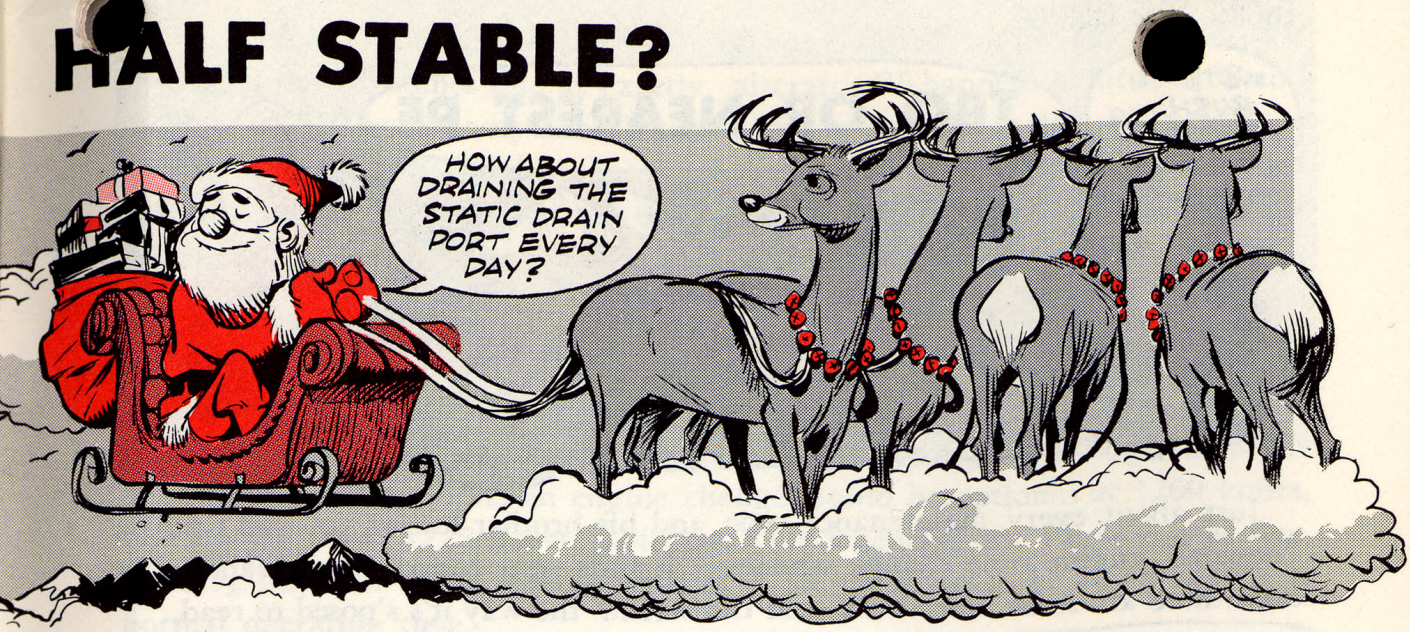
DAILY MEANS DAILY

Keep in mind that **daily**, in this case, means **whether the aircraft flies or not**. The reason is simple enough. Just like any altimeter, there's a bellows action in this control which expands and contracts with barometric pressure changes. Makes no difference whether the aircraft's sitting in the hangar, taxiing to the runway or airborne . . . the bellows still move with each pressure change. There's just less expanding and contracting going on when the bird's on the ground.

Each contraction draws air into the control housing along with any water vapor present. Temperature changes can condense the vapor into moisture. So not one day goes by without the possibility that corrosion forming moisture is sitting inside that housing.

Ignore it and your ASE will return the favor . . . no response.

HALF STABLE?



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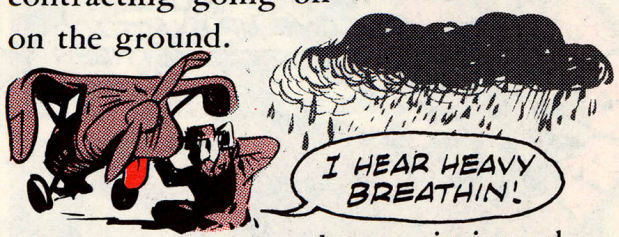

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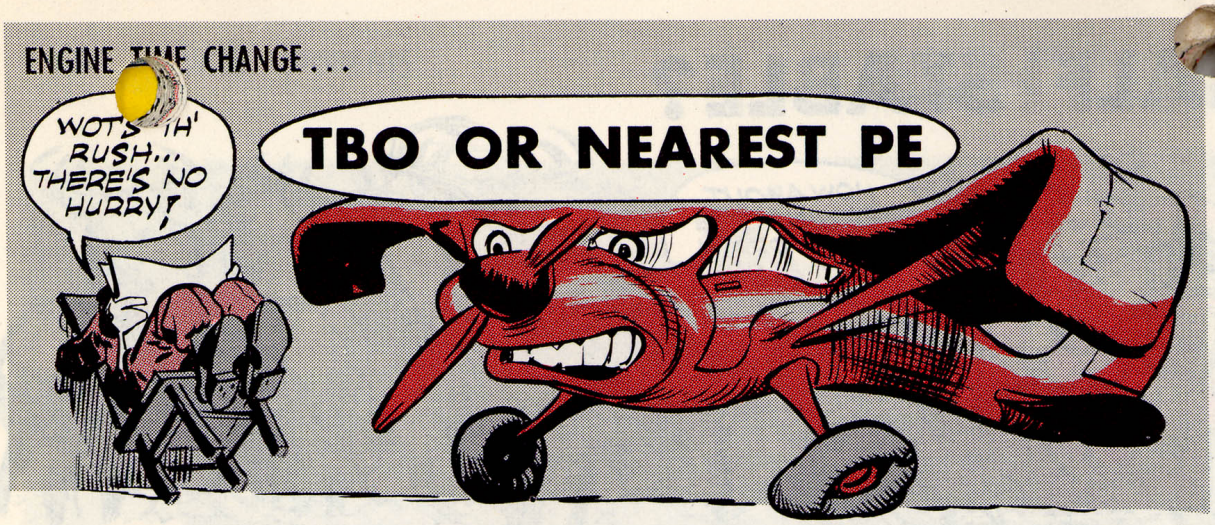


Just about every maintenance type and his brother knows you can't pull a "normal" engine time change whenever it suits your cotton pickin' fancy. But then there are some who don't read the writin' the way it's s'posed to read.

Now take this para 5 writin' in TB AVN 23-10 (2 May 61), "Aircraft Accessory Replacement and Reuse Procedures." It says you're allowed some leeway on your engine's TBO, with the understanding that this allowance is to help ease your maintenance scheduling problems.

ONLY ONE ALTERNATE

The point some maintenance types don't appreciate, though, is that deciding to pass up the engine's normal TBO leaves 'em with only **one** acceptable alternate time at which to change that same engine. This one and only alternate is the aircraft PE **nearest** to the engine's TBO.

BY THE NUMBERS

Like the TB says in para 5a, you ought to replace an engine when its TBO has been reached. But then para 5b steps up with the alternate way of doing business, which is . . . you can also replace that engine at the scheduled periodic inspection nearest to its TBO.

Next comes the point of confusion, otherwise referred to as para 5b(**1**). Now the only reason this subparagraph is tacked on is to explain how you go about figuring out which PE is nearest to the TBO. It doesn't say anywhere that you can make a "normal" engine replacement at just any ol' hour that happens to fall between the minimum and maximum replacement limits.

If you take a 1200-hour TBO as an example, the time change range would run from 1150 hours minimum to 1250 hours maximum—because 50 per cent of an aircraft's PE interval equals 50

hours (before and after the TBO).

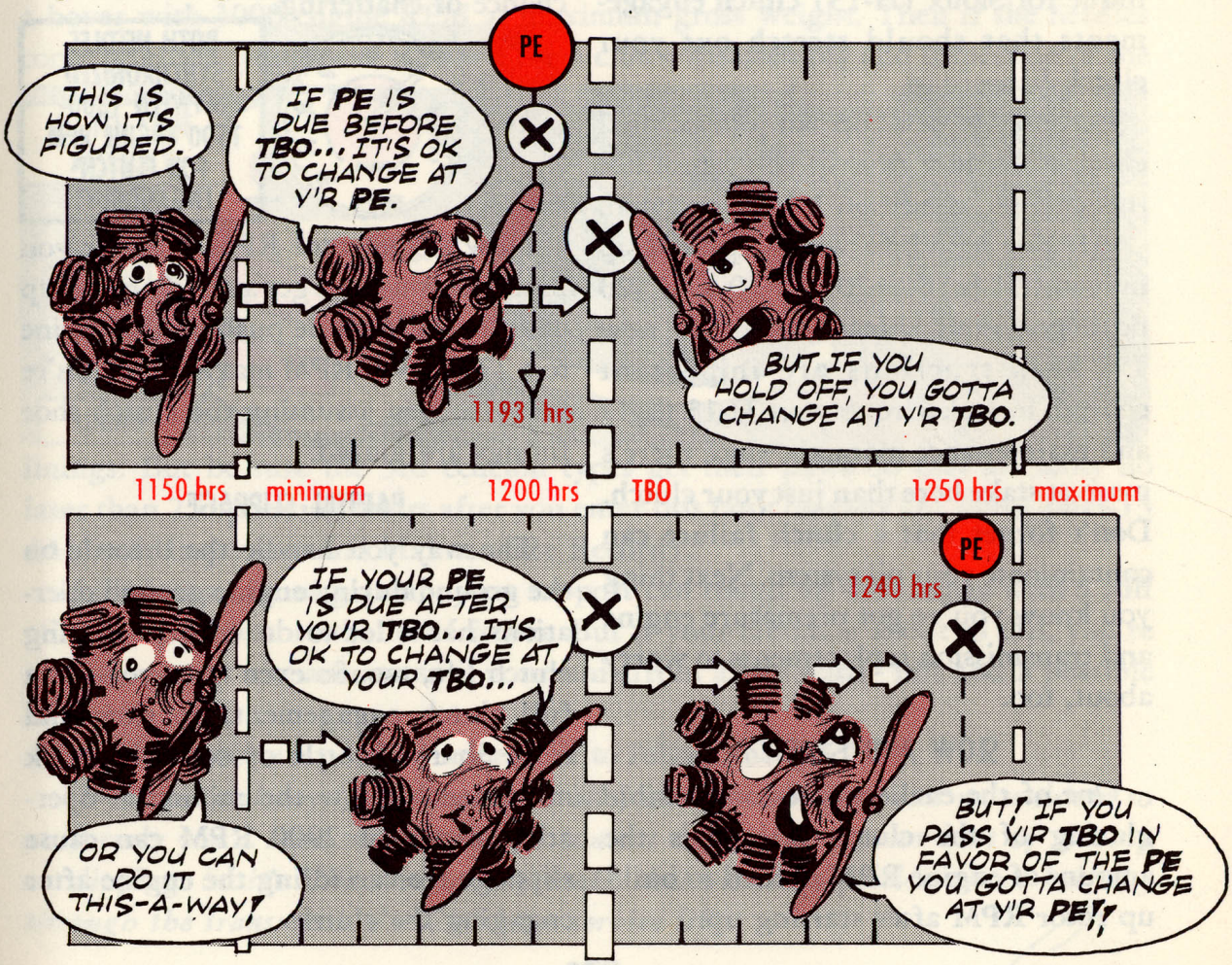
Unless the PE comes due at exactly 1150 and 1250 hours, only one PE can fall within the entire time change range. **That** PE is the **nearest** PE and the **only** alternate to the TBO for an engine change. In the unique case [illegible]re your aircraft's PE happens to hit at 1150 and 1250 hours, the earlier PE would be preferred due to safety of flight reasons —but the 1250 hours PE would also be allowed as a normal engine time change.

MAY VS MUST

The only time you can go **beyond** the TBO is when the nearest PE falls due between the TBO and the maximum limit. Then the engine change **may** be done at the TBO, but if not it **must** be included in the following PE. Going back to the 1200-hour TBO example, an engine change would be optional at 1200 hours, but mandatory at 1225 hours, 1240 hours or whenever the PE would be due. Holding off until the maximum limit of 1250 hours would be an **extension** of normal operating time.

But when the nearest PE comes due 50 hours or less **before** the TBO, you **may** change the engine at that PE, but **must** do it at the TBO.

Since pictures are a lot easier to follow than words, track these two flying engines through their last hours before removal:



ATTENTION ALL SIOUX CREWS! . . .

IS YOUR CLUTCH SLIPPING?

Is it your technique that's slippin' . . . or just your clutch? Now don't stand in that rotor downwash looking for an answer when you can moor yourself to your outfit's copy of TCMAC-EH-1306-02667, dated 27 June 1962.

This TMC TWX does two things for you.

First, it establishes a standard technique for Sioux (H-13) clutch engagements that should stretch out your clutch life.

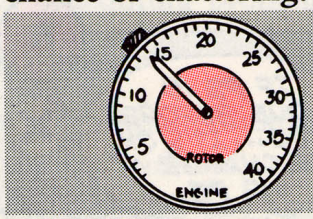
Second, it sets up an operational check procedure to help you figure out the current condition of your clutch.

All this new info will be picked up in your TM 55-1520-204-10 and -20 next go-round. Meanwhile, the new TWX instructions are important enough to lockwire to your H-13 flight and maintenance manuals, since there's more at stake here than just your clutch. Don't forget that a clutch failure can contaminate your oil system. Next thing you know you've got premature engine and transmission replacements to worry about, too.

SLOW AND E-A-S-Y

One of the earliest clues on possible glazing of the clutch linings is the amount of engine RPM needed to build up rotor RPM after starting up.

A clutch in good condition should engage at approximately 1500 engine RPM and be completely engaged by the time you hit 1700 engine RPM. But the TWX recommends beginning synchronization of the needles at the lower speed range of 1300 to 1500 engine RPM . . . which will still allow a clutch engagement, but with less slippage or chance of chattering.



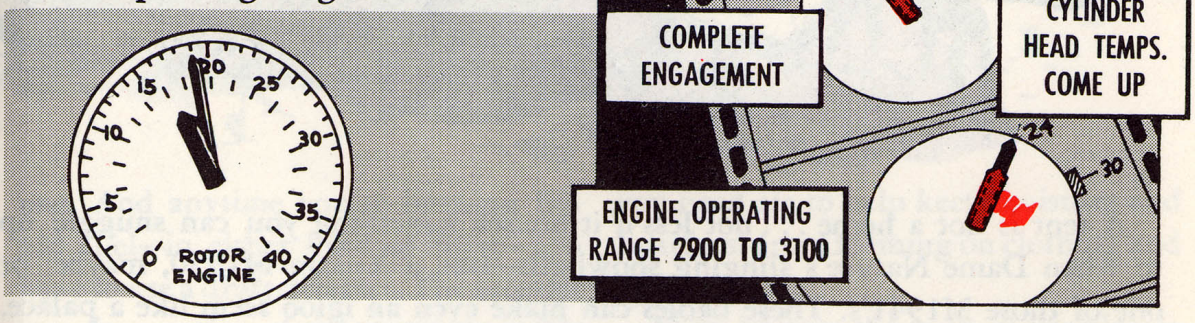
BOTH NEEDLES SYNCHRONIZED BETWEEN 1300-1500 ENGINE RPM FOR CLUTCH ENGAGEMENT

Now if the rotor RPM lags—or you find that you can't get a steady build-up of rotor RPM while pushing the engine to a 2200-2300 RPM maximum—you're fairly safe in assuming the clutch shoe linings are glazed.

PARTIAL SLIPPAGE

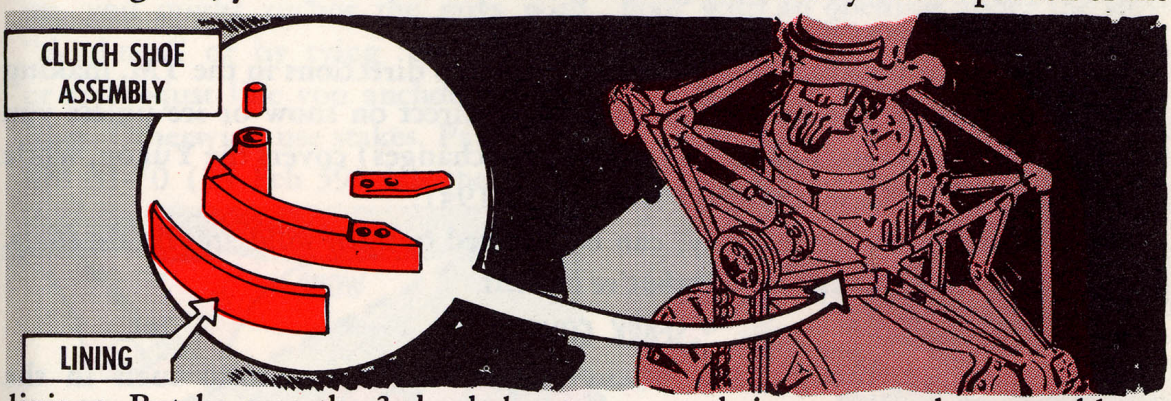
The way you handle the throttle on the ground during engine ground operations has a lot to do with protecting clutch life, too. So even after you get a full clutch engagement, go slow and easy. Sharp throttle or collective stick movements below the minimum operating range of 2900 RPM can cause slippage. So can idling the engine after engaging the clutch.

You can correct any flaws in your technique by noticing whether the needles split at any time you're over 1700 RPM with the collective in full down position . . . and remembering to pause at 2400 RPM if the oil and cylinder head temps haven't reached their normal operating ranges.



OPERATIONAL CLUTCH CHECK

Any time you suspect glazed clutch linings, but can't get a sure indication during ground runup, use the TWX operational check. Bring your Sioux to a hover with 3000 engine RPM at maximum gross weight. Then if the needles come unglued, you know it's time for a clutch disassembly and inspection of the



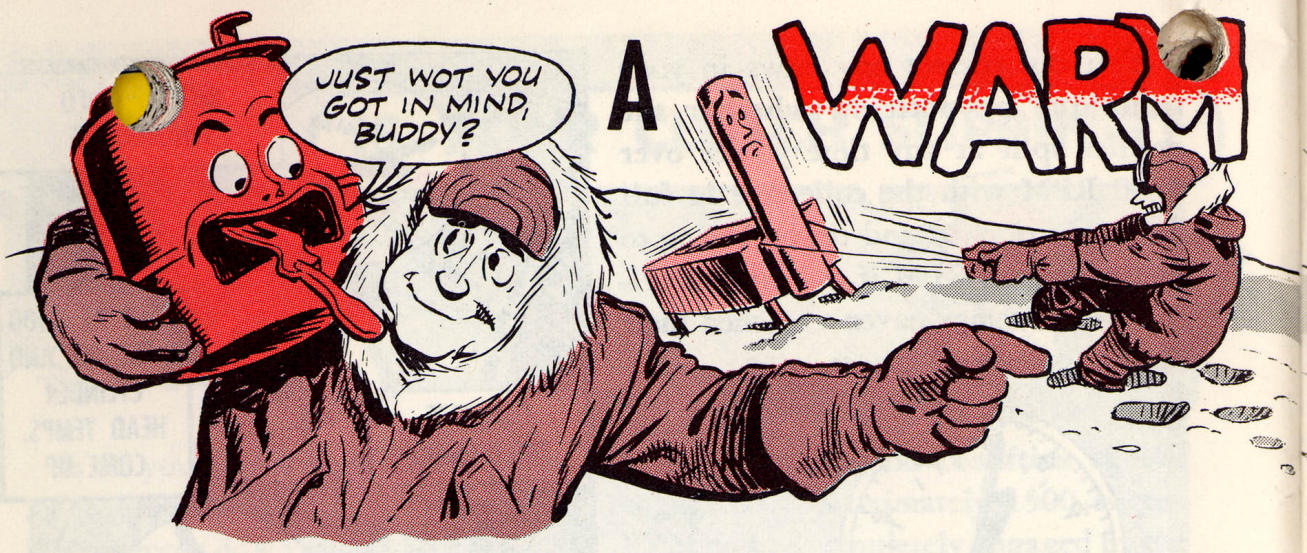
linings. But be sure the 3rd echelon types get their paws on that assembly no later than 25 operating hours after you enter this fault on your DA Form 2408-13 (Aircraft Inspection and Maintenance Record).

If it's just a case of glazing, your support can rough up the linings with a stiff wire brush to restore the lost friction. But if your clutch is about to fail, you're giving support a chance to save your unit from a big repair bill and a possible EDP.

So prove you're a pro and remember to follow the TWX.

PS—There's always the chance that all four clutch linings can wear down so uniformly you'd have metal to metal contact without any prior hint of glazing or slipping. So it's still necessary to make that visual inspection about halfway through the transmission's 1200-hour service life.

Connie



A tent is not a home . . . not less'n it houses something you can snuggle up to when Dame Nature's slinging snowballs—like a Yukon M1950, maybe, or one of those M1941's. These babies can make even an igloo seem like a palace.

You demand two things from your stove—warmth and safety. It asks only one from you—good PM. With a fair shake like that you'll come out 'way ahead if you follow these tips:

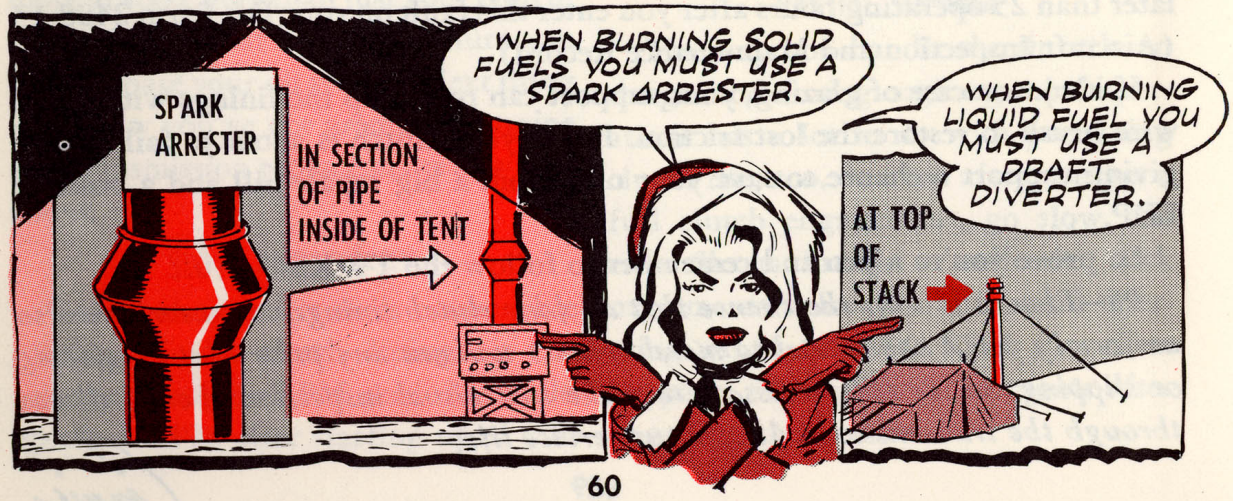
Check it out first—components, parts, everything—and make sure they're all OK for duty. If you find anything wrong that you can fix yourself, hop to it. If you can't fix it, report it.

Set your stove up according to the step-by-step directions in the TM, making sure the stove is **on the level.** But don't set it direct on snow or ice unless you like slush in your soup. TM 10-735 (Feb 52 w/changes) covers the Yukon, while TM 10-725 (Mar 52 w/changes) is for the M1941.

Both these stoves, by the way, can be adapted to burn solid and liquid fuels. So watch for the different set-ups that're needed.

SPARK CONTROL

Just remember, though, that whenever you're burning solid fuels in the M1941 you have to use a spark arrester. FSN 4520-153-4616 (QM) will get you



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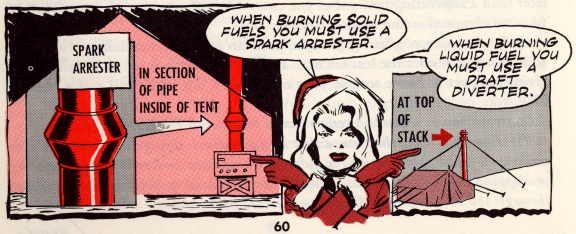
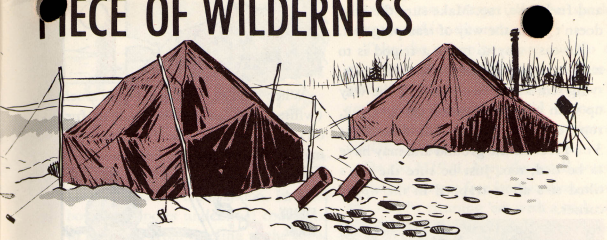
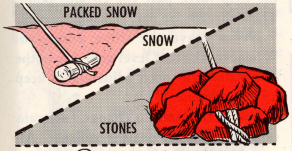


PIECE OF WILDERNESS



one. And anytime you're burning liquid fuel—in either kind of stove—you have to use a draft diverter. The arrester goes in a section of the stovepipe inside the tent. The diverter goes at the top of the stack outside the tent.

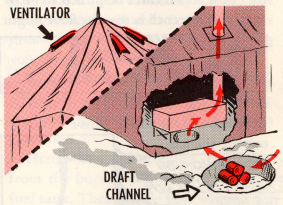
You'll have to anchor the guy ropes in high winds. If there's a quick-freeze on, you might anchor the guys with "deadmen" or by tying 'em to rocks or trees—just like you anchor the tent lines. Otherwise, use stakes. Para 28 in FM 31-70 (24 Feb 59) has the scoop.



CAUTION

Here're some other things to check on before lighting up: No matter how cold it is outside and no matter what kind of fuel you're using, make sure there's enough air coming in your tent. Poisonous gases from partly used fuel can put you on ice for keeps. Besides, you need air to help keep moisture and hoarfrost from forming on clothing and equipment.

First, be sure the built-in ventilators near the peak of your tent are open. If this doesn't do it, you might build a draft channel by forming a pipe with green logs. Bury the channel in the floor with an opening under the stove.

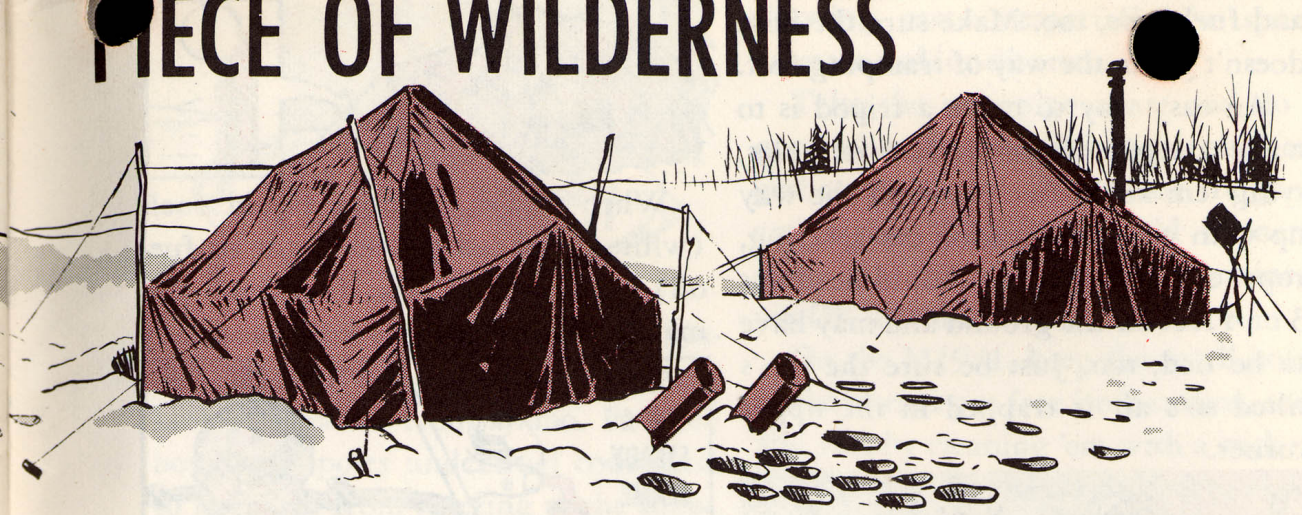


The draft of the stove will then draw fresh air from the outside into the channel. The FM spells this out in Para 29.

Backtrack on every inch of your heating system, starting with the fuel container (5-gal jerry can or 55-gal drum) outside the tent. See that the container's rigged up right on its tripod or platform and is high enough to gravity feed the fuel. Doublecheck the adapter

PS MORE

PIECE OF WILDERNESS



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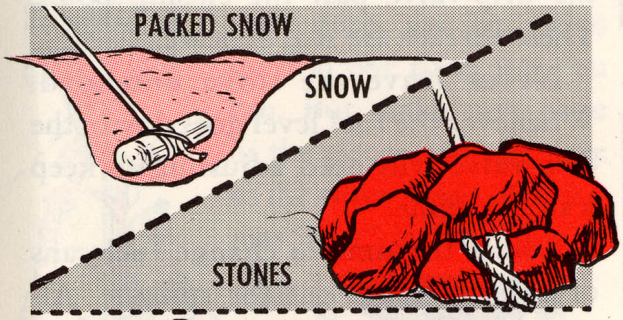

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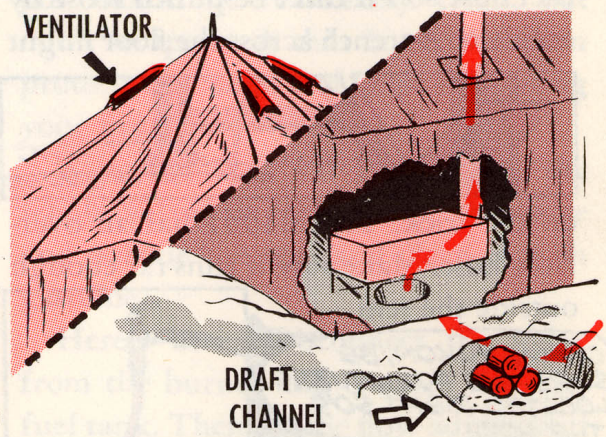

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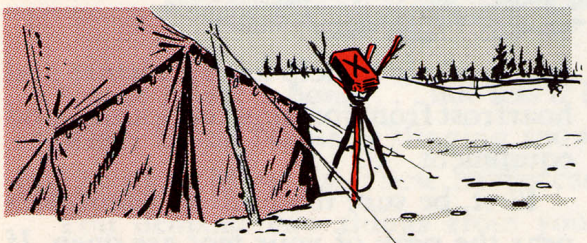
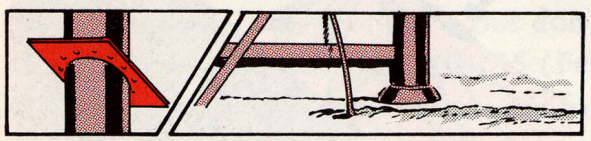
PS MORE

and fuel hose, too. Make sure the hose doesn't get in the way of tramping feet.

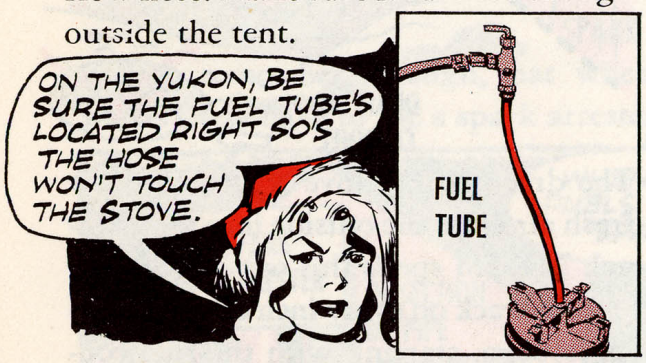
An easy way to make a tripod is to make a tepee out of three 6-ft. poles, tying 'em about two-thirds of the way up with wire from ration cases, string, rope, etc. The fuel can should be about 3 or 4 feet off the ground and may have to be tied, too. Just be sure the can's tilted so's air is trapped in the upper corner.



Now duck inside the tent and eyeball the rest of the system. See that the stovepipe connections are tight and tent shields are adjusted right. Protect the fuel hose so's it can't be pulled loose by accident. A trench across the floor might

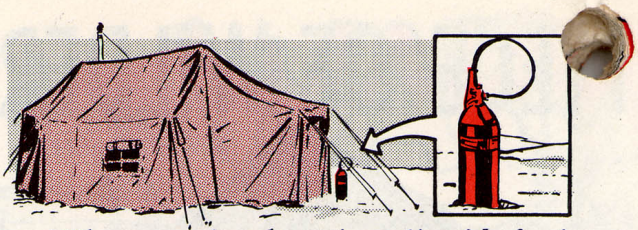


do the trick. The M1941 has an overflow hose. Make sure it runs far enough outside the tent.

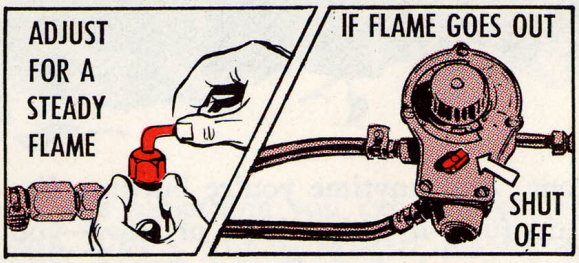


DANGER AREAS

Fire and explosion are real dangers around these stoves. Keep a fire extinguisher or a pail of water or a bucket of loose sand always within hollering distance. Some guys keep a pound of baking soda handy for this purpose.



When you're burning liquid fuels (white or leaded gas, kerosene or fuel oil), doublecheck the fuel rate and make adjustments to keep a steady

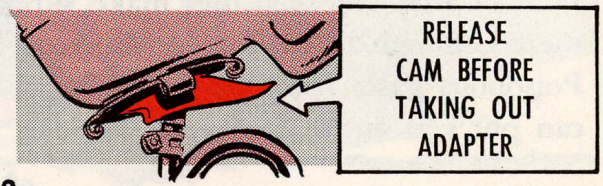


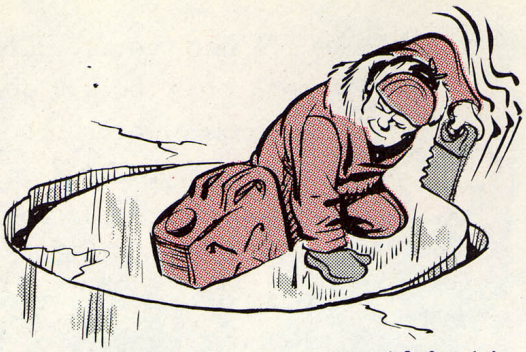
flame. If the flame accidentally goes out, shut off the drip-valve on the M1950 or turn the inlet-valve on the M1941 to OFF, **pronto.** Then, after the stove's cooled off, wipe up the excess fuel inside the stove and wait at least two or three minutes before lighting up again. And always keep your mug away from the door when you light up.

Be careful, though, you never force the drip-valve past the closing point. These threads are real delicate.

Never leave the stove untended. Whenever the fuel level goes down, the drip-valve will need adjusting to keep a steady flame.

Comes the time to change fuel cans or drums, watch out for spillage. Always release the cam before taking out the adapter . . . like the TM's say. And watch out that the washer on the adapter doesn't get squeezed out of place when you tighten the body plug.



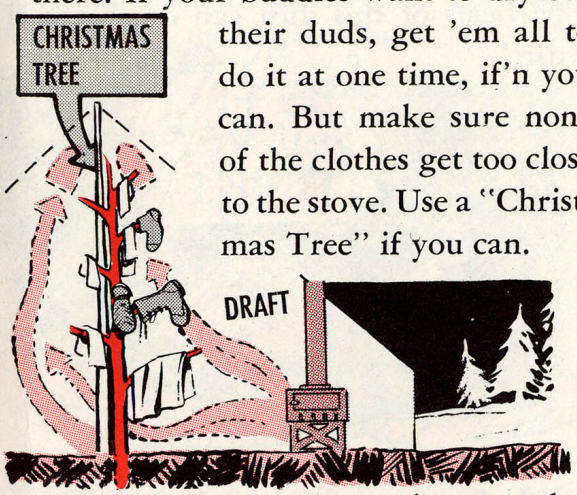


Above all, never store liquid fuel inside the tent. When you store it outside, keep it separate from ammo. Put tree boughs or poles under fuel containers to keep 'em from freezing to the snow.

TOO MUCH IS BAD!

Here's another tip: Never let the stove go full blast — no matter who's griping or what kind of stove you have or what you're burning. You could overheat the stovepipe and set the tent on fire, or you might even put the stove body out of shape.

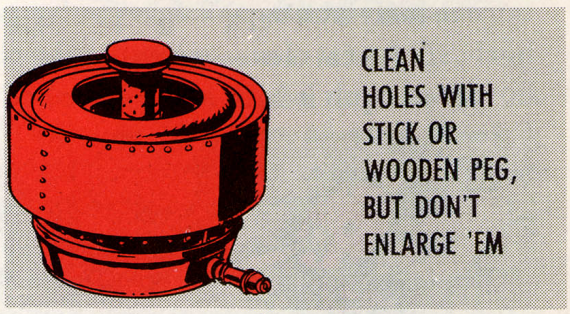
Besides, overheating the tent will make you sweat and this is dangerous when the temperature is way down there. If your buddies want to dry out their duds, get 'em all to do it at one time, if'n you can. But make sure none of the clothes get too close to the stove. Use a "Christmas Tree" if you can.



Tain't always gonna be easy, but once a week at least give your stove a complete going-over. Fix any defects you find or have 'em fixed. Put medium oil on the stove body and all parts showing rust . . . especially the spark arrester and/or diverter.

Take the stovepipe apart and do a good job on the soot. When you put it together, make sure all sections are good and tight. With the liquid burners, make sure the fuel lines and containers are OK all the way.

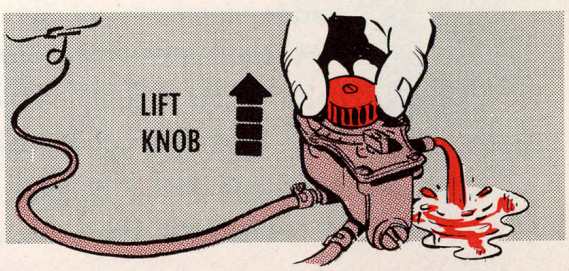
On the M1941, keep the small holes in the burner pot free from carbon, soot and rust by cleaning 'em with a stick or wooden peg. But be careful not to make



the holes any bigger. The bottom of the pot should be reasonably clean, but don't scrape it. A thin layer of carbon protects the metal and helps in starting your fire.

Take the float valve strainer — the whole valve, in fact—out of the stove and outside the tent and clean it with gasoline.

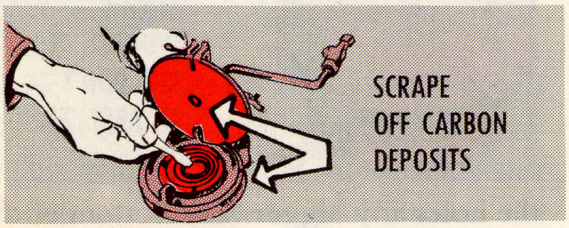
Here's how: Disconnect the valve from the burner and connect it to the fuel tank. Then lift the flow adjustment knob and let the gas flow through the valve body. After it's all nice and clean, refill the fuel container with clean fuel.



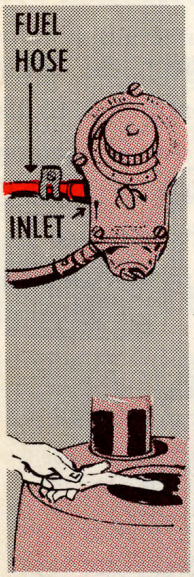
P.S. MORE

To clean the burner on the Yukon stove: close the drip-valve and let the burner cool. Then lift the wire loop and the retaining arms to the side so that the burner assembly may be taken from the stove. Next, take out one of the cotter pins holding the burner body to the burner cap and let the burner body swing down. The second cotter pin will act like a hinge in this deal.

Then, use a knife or screwdriver and scrape the carbon deposits from the burner body and cap. When you've got both surfaces clean, reassemble the burner and put it back in the stove body.



When you're starting up the M1941, take a gander at what Change 2 (15 Feb 61) says about turning the pointer to **9** to start the fuel flowing to the burner and then turning it to **3** or **4** after it gets burning good. This is a switch from the old method.

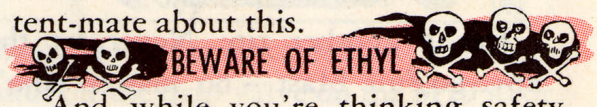


You also have to be careful on this baby that you connect the fuel hose to the male fitting marked INLET on the valve. If you goof and connect it to the over flow fitting instead, you'll have a fire on your hands.

When you're burning solid fuels (coal, wood, etc.) feed the fuel in small amounts till the bed is burning brightly.

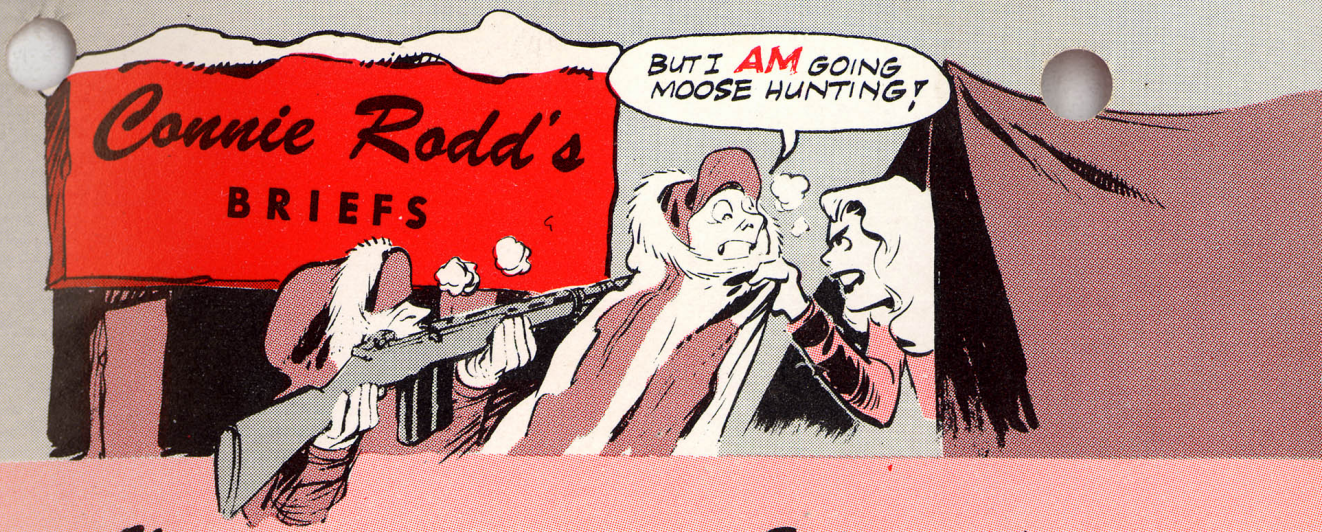
When you're addin coal, push the live ones to the rear and put the fresh ones up front. This way the gases from the fresh coals will be burned off as they pass over the live ones. Remove clinkers to keep the grate from getting blocked, and empty the ashes right often.

O'course, you know better'n to pour gas or oil on any fire, either to start it or to make it burn faster, but warn your tent-mate about this.



And while you're thinking safety, chisel this behind your ear: If you're using leaded gasoline 'stead of white unleaded gas, be mighty careful about tetraethyl lead poisoning. This lead of ethyl fluid is real poison any way you use it—if you inhale or swallow the liquid or, (get this!) if you get the dust on you after the fluid's evaporated. Tiny particles of this dust can do you real dirt!

Your tent stove's job is to make a small piece of the great frozen outdoors fit to live in. Your job's to see that it racks up a "mission completed." That's the gist of it.



New-on inspections

If you want to get the latest on inspections, chew over AR 750-8 (21 Aug 62) on Command Maintenance Management Inspections.

Pubs for National Guard

National Guard outfits can get more maintenance pubs by following AR 310-2, para 36a(2) and b(2) (1 Apr 59). If it's initial distribution that you need more of, your State Adjutant General needs to write a **letter** to the Chief, National Guard Bureau and tell why you need to get more. NGR 2-2 (15 Apr 61) covers these procedures, too.

Tolerance tip

Have you Hercules radarmen noticed the change in tolerance on the stalo filament voltage for your acquisition radar? TM 9-1430-251-20/4 (Apr 62), spells out the new tolerance as between 6.3 and 6.5 volts.

Now you know

To keep from guessing wrong, make a note on your skull that the .50-cal machine gun (FSN 1005-322-9715) listed on page 4, Ch 2, to TM 9-2350-201-12 belongs to just the M41 and the M41A1 tanks' OEM—not for the M17 trainer. So you don't need to order one for your trainer.

Safety problems

Busted safeties on M14 rifles seem to be the order of the day in your outfit? Could be some of your sidekicks might do with a little reminding that the safety is to be used only when the M14 is in a cocked position. Trying to force the safety on with the rifle uncocked is a fast way to break the safety.

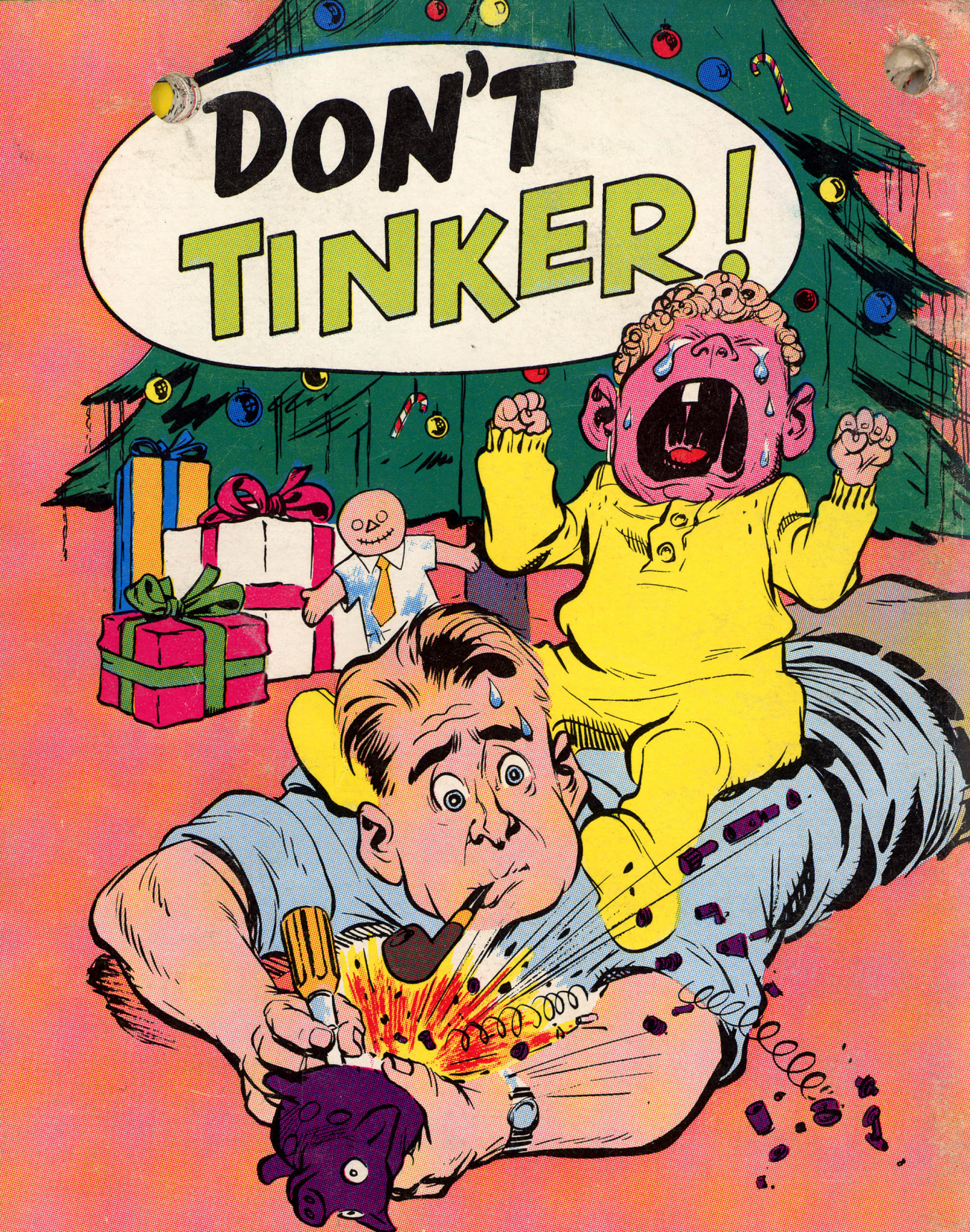
Cupola cures

Has your support unit been around to fix up your M60 tankers with two urgent MWO's? Those'd be MWO 9-1000-213-30/6 (18 Dec 61) and MWO 9-1000-213-30/7 (12 Dec 61). The -30/6 MWO gets rid of brass ejection troubles by putting a new brass ejection system in the M19 cupola. And the -30/7 calls a halt to ammo jamming by installing a new ammo feed system in the cupola.

Latest on G744

If there's a 5-ton G744-series vehicle you care about, you'll be needing Change 7 (7 Jul 61) to TM 9-8028 pronto. Besides giving the latest OEM and Maintenance Allocation Chart, it supersedes all the other changes to the TM. And this Change 7 plus TM 9-2320-211-20P (14 Jan 59) serves to supersede Ord 7 SNL G744 (24 Apr 56) and its Change 1. Change 7's got pictures of the vehicle tools, too.

Would You Stake Your Life on the Condition of Your Equipment?



...Work only on equipment you're authorized to repair.